AN OPEN NON - RANDOMIZED CLINICAL TRIAL OF

SANGU CHUNNAM

IN

AZHAL THALAINOKKADU (SINUSITIS)

The dissertation Submitted by

Dr. V. INDUMATHY (Reg No: 321511106)

Under the Guidance of

Prof. Dr. N. ANBU, M.D(S)

Submitted to

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

In partial fulfillment of the requirements

For the award of the degree of

SIDDHA MARUTHUVA PERARIGNAR

DOCTOR OF MEDICINE (SIDDHA)

BRANCH I – MARUTHUVAM

POST GRADUATE DEPARTMENT OF MARUTHUVAM

THE GOVERNMENT SIDDHA MEDICAL COLLEGE

CHENNAI – 106

OCTOBER – 2018

CERTIFICATE

This is to certify that the dissertation entitled "**AN OPEN NON – RANDOMIZED CLINICAL TRIAL OF SANGU CHUNNAM IN AZHAL THALAINOKKADU (SINUSITIS)"** is a bonafide work done by **Dr. V. INDUMATHY**, Government Siddha Medical College, Chennai – 600 106 in partial fulfillment of the University rules and regulations for award of **SIDDHA MARUTHUVA PERARIGNAR** under my guidance and supervision during the academic year 2015 – 2018.

Name & Signature of the Guide

Name & Signature of the HOD

Name & Signature of the Principal

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INTRODUCTION

INTRODUCTION

Siddha system of medicine is one of the oldest & still extant health traditions. This indigenous system is more prevalent in southern states of India especially in Tamil Nadu as well as other Tamil speaking countries such as Sri Lanka, Malaysia and Singapore.

Siddha medicine traces its origin to Dravidian culture which owes its origin allegiance to the cult of Siva and worship of Linga, still we have evidence that Lord Siva is named as Vaitheeswaran, Marundeeswaran which literally means God of Treatment and God of Medicine.

This system of medicine is a distinct Science and a unique art of healing given by great spiritual scientists called **SIDDHARS**. The word Siddhar is derived from **SIDDHI** which means Eternal bliss.

Siddhars had a concept that a healthy soul can only be developed through a healthy body. So they developed methods and medications that are believed to strengthen their physical body and souls too. They practiced intense yogic practices, including years of fasting and meditation so they achieved supernatural powers and gained supreme wisdom and overall immortality. These Siddhars recorded their impeccable knowledge in palm leaves.

Life in Siddha is conceived as the union of body, senses, mind and soul. In Siddha, Vatham (represents the elements of Air and Space) responsible for all movements of mind and body, Pitham (represents the element of Fire) responsible for preservation of health, Iyam (represents the element of Earth and Water) responsible for strength and body built, which are the three humors responsible for creation, preservation and destruction of human body and health. When they are in the state of equilibrium (4:2:1 the ratio in which they exist) our body remains in a healthy state while any disturbance in the ratio leads to disease state or death.

Yugimunivar is the first Siddhar to classify disease based on the clinical signs and symptoms along with Humoral pathology. In Yugi Vaidhiya Cinthamani, disease **AZHAL THALAINOKKADU** is brought under the type of vatha diseases. Here the clinical features of sinusitis are correlated with the **AZHAL THALAINOKKADU.** [1]

Sinusitis is the inflammation of mucosal surface of paranasal sinuses. It may be acute or chronic. [2] According to the National Ambulatory medical care survey data, Sinusitis is the fifth leading diagnosis.

The prevalence of sinusitis estimated to be 14% of the Global population. Females are highly affected compared to males (5.7% Vs 3.4%). An estimated 134 million Indians suffer from chronic sinusitis. The prevalence is high in developing countries such as India. 1 in 8 Indians were affected by chronic sinusitis. Acute sinusitis is estimated to occur in 0.5% to 2% of adults with common cold and in 5 to 10% of children with such infection. [3]

Nowadays antibiotics and surgery are recommended for Sinusitis. The goal in surgical treatment is to reestablish sinus ventilation and to correct mucosal opposition in order to restore the mucociliary clearance system. Surgery strives to restore the functional integrity of the inflamed mucosal lining but Surgery has failed to cure Sinusitis. So the need of drug which will give effective remedy is increasing.

With a view to help the suffering community there is a need to find a safer, cost effective drug which would cure the disease without surgical intervention and can be used safely for longer periods.

In Siddha System, there are so many herbal drugs, herbo-mineral drugs and metallic preparations are indicated for Sinusitis.

I had chosen a Siddha trial medicine of herbo-mineral formulation SANGU CHUNNAM that comes under higher category containing nano particles for sinusitis which have life span of 500 years.

In this medicine main ingredients are Paalsangu and Lemon juice. Paalsangu contains calcium in nature, which when it is grinded with Lemon juice and heated in particular temperature it becomes nano particle. The ionized calcium has anti-inflammatory and Lemon juice have anti-microbial and analgesic activity.

My Dissertation Medicine contains nano particles, increased bio-availability, larger life span and in small doses itself very effective. So, the Sangu Chunnam has potential effect on Sinusitis.

AIM AND OBJECTIVES

AIM AND OBJECTIVES

AIM

The aim of the dissertation study is to analyse the selected disease **AZHAL THALAINOKKADU** both clinically and experimentally with the trail medicine **SANGU CHUNNAM**.

OBJECTIVES

To evaluate the therapeutic efficacy of SANGU CHUNNAM in AZHAL THALAINOKKADU.

To collect the literature of both Siddha and Modern aspects of the disease AZHAL THALAINOKKADU.

To study the clinical course of the disease with observation on the etiology, classification, pathology, differential diagnosis, prognosis, complications and treatment by Siddha aspect.

To have an idea about the incidence of the disease with age, occupation, economical status, habits, family history and climate conditions.

To expose the clinical diagnosis methods mentioned by Siddhars to know how the disease manifest due to the deranged Mukkutram, Pori pulangal and Ezhu Udal Thathukkal.

To have detailed clinical investigations and to have a clinical trial on the disease AZHAL THALAINOKKADU with the Siddha trial medicine SANGU CHUNNAM.

To have the modern parameters to confirm the diagnosis and prognosis of the disease and to evaluate the medicine SANGU CHUNNAM.

Toxicological analysis (Acute and Sub-acute)

Pharmacological study (Anti –inflammatory and Analgesic)

Bio chemical analysis (Qualitative and Quantitative)

Statistical analysis

REVIEW OF LITERATURE

SIDDHA ASPECT

SIDDHA ASPECT

Headache is the most common pain syndrome. It is also the most frequent syndrome in neurology where it may be a disease itself or indicating an underlying local or systemic disease. Many Siddhars described about headache and Yugi explained the headache under the classification of vatha diseases. He explained in detail about the aetiology, clinical features, and prognosis of diseases.

VATHA NOIGAL

Synonym: Vali noi

DEFINITION

When Valikutram is deranged it manifest twitching and throbbing pain shivering and function of all part of body will be affected, there by producing so many diseases.

நரம்பு துவாரங்களில் கெட்ட நீர் தங்கி தசையில் ஊறி

வாயு அதிகரித்து வலி அசதி சர்வ அங்கநோயைப்

பற்றி வாதத்தை விளைவித்தலாம்.

CLASSIFICATION OF VATHA DISEASES

ACCORDING TO YUGI

“ஆமப்பா வாதமென்பத்து நாலும்”[4]

- யூகி வைத்திய சிந்தாமணி

ACCORDING TO AGATHIYAR

1. “எண்பது வாத மிரு வகைப் படுத்திக் காணில்”

2. “விளம்பிடும் வாதநோவு எண்பத்தி நாலு மிக்க”[5]

- அகத்தியர் 2000

3. “மற்றுமே வாதரோக வகையும் எண்பத்திநாலாமே”

- மகா முனிவரின் குரு நாடி

ACCORDING TO THERAIYAR

‘‘உறங்கும் வாதமொழிய வெண்பதுக்கு’’ [6]

- தேரையர் வைத்திய காவியம்

ACCORDING TO BOGAR

‘‘மட்டமாம் வாதம் எண்பதுவும் போகும்’’ [7]

- போகர் 700

ACCORDING TO 4448 VIYATHIGAL VILAKKAM

‘‘விளம்பிடும் வாதநோவு எண்பத்தி நாலு மிக்க’’[8]

- 4448 வியாதிகள் விளக்கம்

AETIOLOGY OF VATHA DISEASES

I. ACCORDING TO YUGI

‘‘என்னவே வாதமது எண்பதாகும்
இகத்திலே மனிதர்க்கு எய்யும்வாறு
பொன்னவே பொன்தனையே சோரம் செய்தும்
பெரியோர்கள் பிராமணரைத் துஷணித்தும்
வன்னவே வஞ்சத்தில் சோரம் செய்தும்
மாதாபிதா குருவை மறந்த பேர்க்கும்
கன்னவே வேதத்தை நிந்தை செய்தால்
காயத்தில் கலந்திடுமே வாதந்தானே’’ [9]

- யூகி வைத்திய சிந்தாமணி

‘‘தானென்ற கைப்போடு துவர்ப்பு வர்ப்பு
சாதகமாய் மிஞ்சுகிலும் சமைத்த அன்னம்
ஆனென்ற ஆறினது பசித்தலாலும்
ஆகாசத் தேற்றநீர் குடித்தலாலும்

பானென்ற பகலுறக்க மிராவிழிப்புப்

பட்டினியே மிகவுறுதல் பாரமெய்தல்

தேனென்ற மொழியர்மேல் சிந்தையாதல்

சீக்கிரமாய் வாதமது செனிக்குந்தானே'' [9]

- யூகி வைத்திய சிந்தாமணி

1. Abusing the elderly people and priests.
2. Exploitation of charitable properties.
3. In gratitude with mother, father and teacher.
4. Breach of trust.
5. Over consumption of bitter, astringent, salty substances.
6. Eating rancid food material.
7. Drinking rain water.
8. Day time sleep.
9. Night awakening.
10. Undue starvation.
11. Lifting over weight.

II. ACCORDING TO THERAIYAR

''தக்க வாயு கோபித்தால் சந்து வுளைந்து தலைநோவாம்

மிக்க மூரி கொட்டாவி விட்டங் கெரியு மலங்கட்டும்

ஒக்க நரம்புதான் முடனங்கு மலர்ந்து வாய் நீருறிவரும்

மிக்க குளிரு நடுக்கமுமாய் மேனிகுளறி வருங்காணே'' [10]

- தேரையர் வாகடம்

1. Pain in the joints.
2. Headache and Excessive yawning
3. Constipation
4. Burning sensation of the body
5. Paralysis
6. Excessive salivation
7. Chillness and tremors

III. IN PARARASA SEKARAM

“தொழில்பெறுகைப்புகார்த் தல்துவர்த்தல் விஞ்சுகினுஞ்சோறும்
பழையதாம் வரகுமற்றைப் பைந்தினை யருந்தினாலும்
எழில் பெறப் பகலுறங்கி இரவினி னுறங்கா தாலும்
மழைநிகர் குழலி னாளே வாதங்கோ பிக்குங் கானே” [11]

- பரராச சேகரம்

“காணவே மிகவுண் டாலுங் கருதுப்பட் டினிவிட்டாலும்
மானனை யார்கண் மோக மறக்கினு மிகுந்திட்டாலும்
ஆணுவ மலங்க டம்மை யங்ஙனே விடாத தாலும்
வாறுதன் மடநல் லாளே வாதங்கோ பிக்குங்காணே” [11]

- பரராச சேகரம்

“பாரினில் பயப்பட் டாலும் பலருடன் கோபித் தாலும்
காரெனக் கருகி யோடிக் கழமரத் துரத்தி னாலும்
ஏற்பெறு தனது நெஞ்சின் மிகத் துக்க மடைந்திட்டாலும்
பாரிய காற்றினாலும் படரினும் வாதங் காணும்” [11]

- பரராச சேகரம்

1. Excessive consumption of bitter, astringent substances and rancid food materials
2. Day time sleep
3. Night awakening
4. Excessive food intake (voracious appetite)
5. Starvation
6. Excessive sexual indulgence
7. Fear
8. Angry
9. Worries
10. Exposure to dry weather

IV. SARABENDRA VAIDHIYA MURAIGAL - VATHA ROGA SIGICHAI DESCRIBES THE FACTORS FOR VITIATION OF VALI

1. Excessive intake of too dry, hot and cold substances.
2. Lack of food intake
3. Excessive sexual indulgence
4. Excessive awakening
5. Diminished or Excessive intake in taking purgative or vomiting medication
6. Excessive blood loss during medication
7. Jumping, prolonged running, walking
8. Extraneous work
9. Weakness due to worry, diseased condition , exhaustion
10. Suppression of 14 Vegas
11. Indigestion
12. Trauma
13. Suppression of hunger
14. History of trauma during motor vehicle accident

THALAINOKKADU

ACCORDING TO YUGI

“சிறியதோர் வாதத்தின் தலைநோக்கோடு

பூணவே பித்தத்தின் தலைநோக்காடு

புகழான சேட்டுமத்தின் தலைநோக்காடு

காண சன்னி வாதத்தின் தலைநோக்கோடு

தரு ரத்த பித்தத்தின் தலைநோக்காடே

நோக்கான கிருமிகந் தலை நோக்காடு

நுதற் சூரியவர்த்த மொடு சந்திரவர்த்தம்

ஊக்கான கர்னா வாதந் தன்னோடு

ஒரு தலையின் னாவர்த்த வாதமு மேயாகும்” [12]

- யூகி வைத்திய சிந்தாமணி

There are 10 types of Thalainokkadu explained as follows:

1. Vali Thalainokkadu
2. Azhal Thalainokkadu
3. Silethuma Thalainokkadu
4. Sanni vatha Thalainokkadu
5. Raktha pitha Thalainokkadu
6. Kirumikantha Thalainokkadu
7. Suriyavartham
8. Chandra vartham
9. Karna vartham
10. Oruthalai vatha petham

ACCORDING TO DHANVANTHRI

"கதித்திடு மிரத்தந் தன்னை கலந்திடும் வாயுச் சென்னி

பதித்திடும் நரம்பிலேறி பதித்திடச் செவிகண் மூக்கு

விதித்தபல் பிடரிக்குத்தி வேகமாய் நெற்றியுச்சி

யுதிர்த்தியாய்த் தலைவலிக்குஞ் சிரோக்ரஹ வாதமாம்" [13]

- தன்வந்த்ரி வைத்தியம்

GENERAL SYMPTOMS

Even though the clinical picture of 10 types of Thalainokkadu are explained detail in Yugi Vaidhiya Chinthamani, the general signs and symptoms of headache are not given but it is given in Roga Nirnaya Saaram as follows:

1. Heaviness of head
2. Headache
3. Giddiness
4. Throbbing pain
5. Bitter taste

TYPES OF THALAINOKKADU IN VARIOUS LITERATURES:

IN SARABENDRA VAIDHIYA MURAIGAL 10 TYPES ARE CLASSIFIED AND EXPLAINED BELOW

1. Vatha sirasthabam
2. Arthavabethagam
3. Pitha sirasthabam
4. Kapha sirasthabam
5. Raktha sirorogam
6. Sannibatha sirasthabam
7. Kirumi sirarogam
8. Sirakambarogam
9. Sangagam
10. Suryavartham

IN ANUBAVA VAIDHIYA DEVA RAGASIYAM 8 TYPES ARE EXPLAINED BELOW

1. Vatha sirorogam
2. Pitha sirorogam
3. Kapha sirorogam
4. Sannipatha pathigam
5. Raktha sirorogam
6. Kirumi sirorogam
7. Surya vartham
8. Anantha vatha sirorogam

IN ROGA NIRNAYA SAARAM 19 TYPES ARE EXPLAINED BELOW

1. Artha betharogam
2. Surya vartharogam
3. Sangarogam
4. Sirakambarogam
5. Kirumi thalai vali
6. Udira thalai vali
7. Vatha thalai vali

8. Pitha thalai vali
9. Silethuma thalai vali
10. Tridosha thalai vali
11. Tharuna rogam
12. Uba sirisha rogam
13. Arumshigai rogam
14. Moortha peedaga rogam
15. Sirovithiradai rogam
16. Sirorputha rogam
17. Indralutha rogam
18. Palidha rogam
19. Kaladi rogam

AZHAL THALAI NOKKADU

IN YUGI VAIDHIYA CHINTHAMANI

‘‘வண்மையாய் நிற்கின்ற மூக்குத்தானும்

வடிந்துமே நீர் பாய்ந்து தலை கனத்து

வெண்மையாய் வாய்நீர் தான் மிகவும் ஊறி

மீறியே உண்ணாக்கைப் பற்றி நொந்து

திண்மையாய்ச் செவிதனிலே குத்தலுண்டாய்ச்

சிரசுதான் பாரமாய் மிகக்கனக்கும்

கண்மையாய்க் கண்ணோடு புருவங்குத்தும்

கனமான பித்தத்தின் தலைநோக்காடே’’ [14]

- யூகி வைத்திய சிந்தாமணி

CLINICAL FEATURES

1. Rhinitis
2. Heaviness of the head
3. Increased salivation
4. Throat pain

5. Pain in the ear
6. Pain over the eyebrows and medial canthus of the eye

IN "NAGAMUNI THALAI NOI MARUTHUVAM"

"கனத்திடுஞ் சுமை களாலும் கடுவெயி லுழல்த லாலும்
நினைத்திடும் எண்ணெய் தன்னை நாள் பட்டு முழுக லாலும்
புனக்கொடி மடநல்லாரை விடாதுறப் புல்கை யாலும்
சினத்தடி படுகை யாலும் சிரசில்நோய் சேரும் காணே"

"இரு செவி நாசியூடே யீவண்டு யேறினாலும்
முருகமிழ் குழலிர் கானற் சுனையிடை முழகினாலும்
மருவிய லாகரி யாலும் மயலுற வருந்தி னாலும்
சிரமிசை யனேக தோடம் சேர்ந்திடும் திருவி னல்லாய்" [15]

- நாகமுனி தலை நோய் மருத்துவம்

- Lifting heavy weight
- Exposure to scorching sun
- Avoid taking oil bath
- Excessive sexual indulgence
- Angry
- Flies, fomite enter into the ear, nose
- Taking bath in mountain spring water
- Intake of alcohol, cannabis
- Worries

AETIOLOGY OF THALAI NOIGAL

In Siddha Maruthavaanga Churukkam the author explained that suppressions of 14 Vegas will produce diseases especially,

Thummal, Malam, Nithirai, Vizhineer

1. **THUMMAL (SNEEZING)**

"தும்மலைத் தடைதான் செய்தால்

தொகுத்திடுந் தலைநோ யுண்டாம்
இம்மையிந் திரிய மெல்லாம்
இயல்புடன் தெறித்த லாகும்
செம்மையில் முகம் வலித்தல்
தீரவே யரை வாதங்கள்
வெம்மையாம் வாயு கொண்டால்
விளைந்திடுங் குணங் களாமே'' [16]

- சித்த மருத்துவாங்கச் சுருக்கம்

2. MALAM (DEFAECATION)

''மலமதை யடக்கி னாலே
மலந்தனை வாயு தள்ளும்
சலதோட முழங்கா லின்கீழ்த்
தன்மையாய் நோவுண்டாகும்
தலைவலி மிக வுண்டாகும்
சத்தமா மபான வாயு
பெலமது குறையும் வந்து
பெருத்திடும் வியாதி தானே'' [16]

- சித்த மருத்துவாங்கச் சுருக்கம்

3. NITHIRAI (SLEEPING)

''நித்திரை யடங்கிப் போக
நிகழ்த்திடு கருமங் கேளாய்
நித்தமுந் தலைக் கனப்பு
நின்றகண் ணோத லாகிச்
சித்தத்திற் செவிடுண் டாகித்
தெளிவறு பேச்சு முண்டாம்
உற்றதோ ருறக்கந் தன்னி

லுண்டாமோர் வாய்வின் கூறே” [16]

- சித்த மருத்துவாங்கச் சுருக்கம்

4. VIZHINEER (LACRIMATION)

“விழியினில் நீர டக்கில்

விதமான இருந்து ரோகம்

வழியடு பீந சங்கள்

வந்திடும் நேத்ர ரோகம்

அழுகிடும் சிரசில் ரோகம்

அதனுடன் வாதங் கூடல்

பழுதுடல் பண்ணிக் குன்மம்

பற்றிடுஞ் குணமு முண்டே” [16]

- சித்த மருத்துவாங்கச் சுருக்கம்

IN SARABENDRA VAIDHIYA MURAIGAL SIROROGA MURAIGAL CHIKITCHAI

- Fumes, Scorching Sun
- Excess Swimming
- Winter season
- Somnolence
- Suppression of tears
- Excessive intake of water and liquor
- Infection
- Suppression of 14 Vegas especially sneezing, belching
- Using high pillows
- Avoiding to take oil bath
- Worries, sorrow
- Smelling fragrance
- Excessive food intake

IN ANUBAVA VAIDHIYA DEVA RAGASIYAM

- Exposure to fume, scorching sun
- Sleep disturbances
- Excessive somnolence
- Exposure to rain water
- Exposure to dry weather
- Suppression of tears
- Infection
- Suppression of 14 Vegas
- Smelling fragrance

IN ROGA NIRNAYA SAARAM ENNUM ROGA NITHANAM

- Excessive sexual indulgence
- Sleep disturbances
- Exposure to chill weather and scorching sun

MUKKUTRA VERUPADUGAL

“காற்றுறு கோபத் தால்வாய் கசப்பில்லா தினிப்பெய்தும்

தோற்றுறு புத்தி மந்தஞ் சொல்லுரை காட்டுந்

தேற்றுறு வாய்மை நீங்குஞ் சிரரோகக் கோபமுண்டாம்

கூற்றுறு கால மான குணமுநற் குணமும் பண்பாம்” [17]

- அங்காதி பாதம்

As per the above stanza, Vali is said to be the phenomenon responsible for causing Azhal Thalainokkadu. Excessive accumulation of Vali humour or wind causes accumulation of fluid in the cavity (i.e., sinus cavity) and produce pain over the sinus area.

Pranan, Viyanan & Udanan are affected and producing the symptoms and signs of Azhal Thalainokkadu. Pranan is mainly responsible for respiration, passing food material in GIT i.e., peristalsis, reflexes like sneezing and coughing. Viyanan is mainly responsible for locomotion free movements of all organs; Udanan is mainly

responsible for consciousness, personality maintenance and also for sneezing and cough reflex.

Azhal is responsible for the healthy maintenance of every tissue of the body and its variation results in inflammatory changes in bony cavity and cartilages. There by, saathaga pitham is deranged in Azhal Thalainokkadu.

The deterioration of the two main kutram may also accompanied derangement Iya kutram leads to structural changes in the bony cavity.

Disturbances in mukkutram produce different clinical manifestation. These include headache, sneezing, and running nose due to disturbed Vali. Inflammation and redness of the mucus membranes is due to disturbed Azhal.

Inflammatory changes of the cavity causing heaviness of the head, headache, due to disturbed Azhal. Accumulation of exudative fluid in sinus cavity is due to disturbed Iyam.

Normal structural and physiological state of the body is maintained by equilibrium with mukkutram and ezhu udalkattugal.

As the udalkattugal are affected by the extrinsic and intrinsic factors. There will be deterioration in the structural and functional status of the body. When the positive factors take hold of udalkattugal and mukkutrum it results in co-ordination of functions there by the disease manifest and expose its clinical features.

PINIYARI MURAIMAI (DIAGNOSIS)

The method adopted to find out a disease in siddha is known as piniyari muraimai. It is based on the following principles

1. Poriyaal arithal
2. Pulanaal arithal
3. Vinavuthal

Pori is the 5 organs of perception namely,

1. Nose
2. Eyes

3. Tongue
4. Ears
5. Skin

Pulan are the actions using pori they are sense, smell, taste, vision and auditory respectively.

“Poriyaal arithal” and “Pulanaal arithal”, go hand in hand with the concept to examine the patients pori and pulan with that of the patients pori and physician pulan.

“Vinavuthal” is a method of enquiring details of either the patient problem that made him to approach the physician from his own or his / her attendance who accompany them.

Along with, above mentioned principles is carried out inspection in modern medicine. Besides, thottu parthal (palpation) and thatti parthal (percussion) are also used to diagnose a patient.

ENVAGAI THERVUGAL

The classical method of clinical examination in Siddha system is known as “Envagai Thervugal”. Various literature explains about Envagai Thervugal is the best method to obtain the correct data of the clinical entity.

ACCORDING TO GUNAVAGADA NAADI

“தரணியுள்ள வியாதி தன்னை யட்டாங் கத்தால்
தானறிய வேண்டுவது யேதோ வென்னில்
திரணியதோர் நாடி கண்கள் சத்தத்தோடு
தேகத்தினது பரிசம் வருணம் நாக்கு
இரணமல மூத்திரமா மிவை களெட்டும்
இதம்படவே தான் பார்த்துக் குறிப்புங்கண்டு
பரணருளால் பெரியோர்கள் பாதம் போற்றிப்
பண்பு தவறாமல் பண்டிதஞ் செய்வீரே” [18]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

ACCORDING TO THERAYAR

"நாடிப் பரிசம் நாநிறம் மொழி விதி

மலம் மூத்திரமிவை மருத்துவ ராயுதம்" [19]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

ACCORDING TO DHANVANTHIRI

"திருமுறை முனிவன் கூறும் வாகடச் செய்கை தன்னில்

வருபல வியாதியான வகையறி குவதே தென்னில்

வருவுறு நாடி யாலு மொண்முக மல நீராலும்

தெரிவிழி நாவி னாலுந் தந்தலக் கணத்தினாலும்" [20]

- தன்வந்திரி வைத்தியம்

ACCORDING TO AGATHIYAR

"நாடியால் முன்னோர் சொன்ன நற்குறி குணங்களாலும்

நீடிய விழியினாலும் நின்ற நாக் குறிப்பினாலும்

வாடிய மேனியாலு மலமொடு நீரினாலும்

சூடிய வியாதி தன்னைச் சுகம் பெற வறிந்து சொல்லே" [21]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

As per the above literature "Envagai Thervugal" which consists of 8 diagnostic parameters is the best method for diagnostic procedure.

The parameters are,

1. Sparisam
2. Naa
3. Niram
4. Mozhi
5. Vizhi
6. Malam
7. Moothirum

8. Naadi

SPARISAM

Sparisam examination includes temperature of the body, smoothness or roughness of the skin, oedema, tenderness, sweating, dryness, hot patches, any abnormal growth of the organ, tactile sensation.

- In case of Azhal Thalainokkadu oedema and tenderness over the sinus area is observed.

NAA

In Naa examination colour, character, sensation, fissure, ulceration, motor functions of the tongue are observed.

- In few case of Azhal Thalainokkadu taste sensation is altered and excessive salivation is noted.

NIRAM

Colour of the skin all over the body and local affected region should be observed

- In Azhal Thalainokkadu, local region affected due to inflammation.

MOZHI

Character of the speech is noted mainly uratha oli (high pitch), thazntha oli (low pitch) is observed

- Alteration in voice is observed in Azhal Thalainokkadu.

VIZHI

Character of the eye is noted. Colour warm, burning sensation, irritation, visual perception and lacrimation should be observed.

- In few cases of Azhal Thalainokkadu excessive lacrimation is noted.

MALAM

The stools are examined for quantity, colour, froth, consistency (watery, semisolid or solid) of stools are observed.

MOOTHIRAM

“அருந்து மாறிரதமும் அவிரோதமதாய்

அஃகல் அலர்தல் அகாலவூண் தவிர்ந்தழற்

குற்றளவருந்தி உறங்கி வைகறை

ஆடிக்கலசத் தாவியே காது பெய்து

ஒரு முகூர்த்தக் கலைக்குட்படு நீரின்

நிறக்குறி நெய்குறி நிருமித்தல் கடனே” [22]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

Before the urine sample are collected for urine analysis patient is advised to take a balanced diet and good sleep. Early morning samples are collected when the patient get up from the bed. Mid- stream urine is collected for avoidance of extraneous materials from the first flow of urine. This can be done within one and half an hour collection of urine sample.

Moothiram Examination Includes:

1. Neerkuri
2. Neikuri

NEERKURI

SIRUNEERIN POTHU GUNAM:

“வந்த நீர் கரிஎடை மணம் நுரை எஞ்சலென்

றைந்திய லுளவை யறை குது முறையே” [22]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

The urine is examined for its Niram (Colour), Eadai (Specific gravity), Manam (Odour), Nurai (Froth nature), Enjal (Deposits).

NIRA THOGAI

“பீதம் செம்மைபைங் கருமை வெண்மையென்

றோதைங் கொழுமையை யொத்துகு நீரே” [22]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

Urine may be any color mentioned below:

1.Yellow, 2.Red, 3.Green, 4.Black, 5.White

EDAI (SPECIFIC GRAVITY)

“மிகத் தடிப்பும் மிகத்தேறலும் இன்றெனில்

சுகத்தைத் தரும் மெய்ச் சுபாவ நீர் நன்றே” [23]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

NAATRAM (SMELL)

“ஓதமணத்தோ டவவோத மொத்தி றங்கும்

சீதளஞ் கம்மிய தேகிகளுக்கே

காணிதில சீழுற் கலந்திழி மணமூறின்” [23]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

NURAI (FROTH)

“பந்தமெய்ப் பசையிளகப்படும் பருவத்

தந்தர்ப் பூதமாய் அனில மூத்திரத்தில்

சம்பந்தப்டும் ததிநுரைப் புனலே” [23]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

ENJAL (DEPOSITS)

‘‘நார்த்தி நீர்ப்பால் போல
நனவுற்ரங் கிழியு மானால்
மாரற்ப முற்ற நீரி
லடி மண்டிக் கிடந்த தானால்
பாரிந்த மெழுகு மாங்காய்
பற்றிய கல்வி னாலே
சீருற்ற செய்கை யென்று
தெரிவுறச் செப்ப லாமே’’ [23]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

NEIKURI

The early morning urine of the patient is analyzed by dropping a drop of gingili oil on the surface of the urine sample. The accumulation, formation, changes, and dispersal under the sunlight without any external disturbances of the urine sample can be noted.

The urine kept on the kidney tray in sunlight, on non-wind condition, should be examined by dropping a drop of gingili oil gently with rod. If oil spread like snake, it indicates Vali neer, a ring indicates Azhal neer and float like a pearl indicates Iya neer and sinks in urine indicates mukktram.

‘‘நிறக்குறிக் குரைத்த நிருமாண நீரிற்
சிறக்கவெண் ணெய்யோர் சிறுதுளி நடுவிடுத்
தேன்றுறத் திறந்தொலி யேகா தமைத்ததி
னின்றதி வலைபோம் நெறி விழியறிவும்
சென்றது புகலுஞ் செய்தியை யுணரே’’ [24]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

VALI NEER

The drop of oil spreading like serpent, it indicates Vali neer.

“அரவென நீண்டின் அ.ஃதே வாதம்”

“அணுகுநெய் பாம்பிற் காணில் அனிலநோய்” [24]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

AZHAL NEER

The drop of oil spreading like signet ring, it indicates Azhal neer.

“ஆழிபோல் பரவின் அஃதே பித்தம்”

“வட்டமாயின் தணிவிலாப் பித்த நோயாம்” [24]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

IYA NEER

The drop of oil spreading like pearl, it indicates Iya neer.

“முத்தொத்து நிற்கின் மொழிவதென் கபமே” [24]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

MUKUTRAM NEER

The drop of oil spread like ring in the snake, snake in the ring, and pearl in snake, pearl in the ring. It indicates Mukutram neer.

“அரவிலாழியும் ஆழியில் அரவும்

அரவின் முத்தும் ஆழியில் முத்தும்

தோற்றில் தொந்த தோடங்க ளாமே” [24]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

NAADI

Naadi is the best parameter in all parameters of Envagai Thervugal. Naadi diagnosis is the confirmatory diagnosis. This method reflects the characters of three humors by palpating, the artery especially the radial artery in the right hand of male and left hand of female.

The only method gives a good conclusion about the disease without any help of patient. It is the bounding force between the sole and body.

Naadi is felt as Vali, Azhal and Iyam respectively with the tip of the index, middle and ring finger over the lower end of the radius. The ratio between Vali, Azhal, Iyam is 1:1/2:1/4 respectively.

NAADI NADAI IN AZHAL THALAINOKKADU

KABA VATHAM

‘‘கண்டாயோ சிலேற்பனத்தில் வாதநாடி

கலந்திடுகில் வயிறு பொருமல் கனத்தவீக்கம்

உண்டாலே லுங்காரஞ் சக்தி விக்கல்

உறுதிரட்சை வாய்வுவலி சந்நி தோடம்

விண்டாலே இளைப்பிருமல் சோபை பாண்டு

விடபாகம் விடசூலை பக்க வாதம்

திண்டாடு நாசிகாபீ டங்கக்கல்

சிரநோய்கள் பலவும் வந்து சிக்குந்தானே’’ [25]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

PITHA KABAM

‘‘பண்பான பித்தத்தில் சேத்தும நாடி

பரிசித்தா லத்திசுர மிளைப்பு ஈளை

கண்காது நயனமலம் நீரு மஞ்சள்

கனவயிறு பொருமல் மஞ்சள்நோய் கண்ணோவு

உண்போது மறுத்தல் இரத்த விப்புருதி தானும்

உளைமாந்தை பீனிசமும் ரத்த வீக்கம்

நண்பான காமாலை சோகை வெப்பு

நணுகிவந்த பலபிணியும் நண்ணுந் தானே'' [25]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

Envagai Thervugal is the most used diagnostic implements in Siddha system of medicines. Besides Envagai Thervugal, the disease can also be diagnosed by other methods namely:

1. Thinaigal
2. Paruva kalangal
3. Uyir thathukkal
4. Udal thathukkal
5. Pori pulangal

Combinations of all the diagnostics criteria are very helpful to attain a proper diagnosis with complete entity based on principles of Siddha science.

THINAI

Geographically, the living country has been divided into five distinct physical regions, namely:

1. Kurungi - Hilly region
2. Mullai- Forest region
3. Marutham - Fertile region
4. Neithal - Sea region
5. Paalai - Sandy region

Each region as got its own characteristics features which influence the inhabitants, mental, physical, economic, occupational and cultural activities. In each region, on basis of its peculiar physical and climatic features some ailments are stated in the medical literature.

The prevalence of Azhal Thalainokkadu is more in Neithal nilam.

PARUVAKALANGAL (SEASONS)

With reference to the position of the sun in the orbit, the year is divided into six seasons. They are:

1. Kaarkaalam - Aavani & Purataasi (Aug 17 to Oct 16, 2017)
2. Koothirkaalam - Iypasi & Karthigai (Oct 17 to Dec 15, 2017)
3. Munpani kaalam - Maargazhi & Thai (Dec 16 2017 to Feb 12 2018)
4. Pinpani kaaalam - Maasi & Panguni (Feb 13 to Apr 13, 2018)
5. Ilavenir kaalam - Chithirai & Vaigasi (Apr 14 to Jun 14, 2018)
6. Muthuvenir kaalam - Aani & Aadi (Jun 15 to Aug 16, 2018)

In every season there will be some changes in land, water, plants, animals and human beings, which will modify the physiology and rendering them more susceptible to certain specific diseases which are common in these seasons.

UYIR THATHUKKAL

Knowledge of three uyir thathus and ezhu udal kattugal will be helpful to do detail study on the disease.

VATHAM

“ஒழங்குடன் தாதேழ் முச்சோங்கி இயங்க

ஏழச்சிபெற எப்பணியு மாற்ற எழந்தரிய

வேகம் புலன்களுக்கு மேவச் சுறுசுறுப்பு

வாகளிக்கும் மாந்தர்க்கு வாயு” [26]

- சித்த மருந்துவாங்கச் சுருக்கம்

The term vatham denotes vaayu, dryness, pain and flatulence.

LOCATION OF VATHAM

Vatham located in the abanan, face, idaikalai, spermatic cord, pelvic bone, skin, nerves, joints, hairs and muscles. It`s maathirai is ‘1’.

TYPES OF VATHAM

It is divided into 10 types:

1. **PRAANAN (UYIR KAAL)**

It is responsible for respiration and digestion.

- In Azhal Thalainokkadu praanan derangement causes rhinorrhoea, sneezing, cough, expectoration, excessive salivation and indigestion.

2. **ABANANN (KIZHNOKUKAAL)**

It lies below the umbilicus responsible for the downward expulsion of stools, urine and constriction of anal sphincters.

3. **VIYANAN (PARAVU KAAL)**

It is responsible for nourishment of whole body.

- In Azhal Thalainokkadu patients have pain in the medial canthus of the eye and eyebrow region, throat and the ears, heaviness of head and headache.

4. **UDHANAN (MELNOKKU KAAL)**

It is responsible for speech expelling vomitus, hic-cough.

- In Azhal Thalainokkadu patients have excessive salivation, throat pain and voice changes.

5. **SAMANAN (NADU KAAL)**

It is responsible for the balancing of the vaayus. Absorption of nutrient`s balance of the body.

6. **NAAGAN**

It is responsible for the movement of eye lids.

7. **KOORMAN**

It is responsible for the sight, closing the eye lids, yawning and closure of the mouth.

- Derangement causes irritation and watering of eyes excessively.

8. **KIRUKARAN**

It is responsible for the secretion of mouth and nose, appetite, sneezing, cough.

- Derangement causes rhinorrhoea, sneezing, nasal congestion, excessive salivation and cough.

9. **DHEVATHATHAN**

It is responsible for aggravating the emotional disturbances and anger.

- Derangement causes insomnia.

10. **DHANANJEYAN**

After the death of third day it escapes from the head.

PITHAM

It is the thermal life force of the body, it`s maathirai is '½'.

LOCATION OF PITHAM

Pitham is located at pranavaayu, blood, moolakini, heart, umbilical region, abdomen, sweating, saliva, eyes and skin.

FUNCTIONS OF PITHAM

Pitham controls digestion, temperature, vision, appetite, thirst, taste, and strength of the body. It is responsible for the formation of red or yellow color in the body and heat especially during digestion. It is also responsible for giddiness, increase of blood, discoloration of stools, urine, anger, memory, bitter and sour taste.

TYPES OF PITHAM

1. **ANILA PITHAM**

This is responsible for digestion of food. It is located in stomach and intestine.

- Derangement produces indigestion in Azhal Thalainokkadu patients.

2. **RANJAGA PITHAM**

It is responsible for the colour and contents of blood.

- Derangement causes anaemia in Azhal Thalainokkadu.

3. SAATHAGA PITHAM

It lies in the heart. It is responsible for the action after thinking.

- In Azhal Thalainokkadu patients have disability to do normal works.

4. PRASAGAM

It is responsible for the complexion of skin.

5. AALOSAGA PITHAM

It is responsible for the vision.

- Derangement causes diminished vision in Azhal Thalainokkadu patients.

KABAM

It is responsible for the stream line functions of the body and maintains the defense mechanism of body intact. It`s maathirai '¼'.

LOCATION OF KABAM

Kabam is located in samana vaayu, sperm, head, tongue, uvula, fat, bone marrow, blood, nose, chest, nerve, bone, brain, eyes and joints. It provides the material for the structure of every cell of the body.

FUNCTIONS OF KABAM

Generally it acts as a destructive factor in the body. When kabam is in normal condition, it maintains heart function, taste, coolness of eyes, lubricates and aids free movements of the joints.

TYPES OF KABAM

1. AVALAMBAKAM

It causes diseases of the respiratory system when it is affected there by indirectly affecting the other Iyams.

- In Azhal Thalainokkadu derangement causes cough with expectoration.

2. **KILETHAKAM**

Appetite and digestion may not be normal when it is affected.

3. **POTHAGAM**

It is present in the tongue and gives taste.

4. **THARPAGAM**

Memory and perception of sense may be affected when this is deranged.

5. **SANTHIGAM**

It is present in the joints and helps free movements.

- Derangement causes pain in joints in Azhal Thalainokkadu patients.

UDAL KATTUGAL

There are 7 primary body tissues which constitute the entire human body and all the organs of various systems.

1. **SAARAM**

Saaram is the end product of digestive process. It provides strength to the mind and body.

2. **SENEER**

The saaram after absorption is converted into seneer. It provides knowledge, strength and health complexion.

- In Azhal Thalainokkadu patients have reduced Hb, increased ESR and Eosinophil count.

3. **OON**

It gives figure and shape to the body. It is responsible for the movement of the body.

4. KOZHUPPU

It provides lubrication to organ and joints. And thus facilitate their functions smoothly.

5. ENBU

Gives shape to the body, helps locomotion and protects vital organs.

6. MOOLAI (MAJJAI)

Present in the bone and it gives strength, maintains the normal condition of the bone.

7. SUKKILAM OR SURONITHAM

Responsible for reproduction

PINI NEEKAM

LINE OF TREATMENT

The only symptom which deals with both body and mind in Siddha system. In Thirukkural, Thiruvalluvar explains the disease and its prevention and diet regime.

They are

- "மருந்தென வேண்டாவாம் யாக்கைக்கு"
- "அற்றாலள வறிந்துண்க வ.ஃதுடம்பு"
- "அற்றதறிந்து கடைப்பிடித்து மாறல்ல"
- "தீயளவின்றித் தெரியான் பெரிதுண்ணின்"
- "மாறுபாடில்லாத உண்டி மறுத்துண்ணின்"
- "இழிவறிந்துண்பான் கணின்பம் போனிற்குங்" [27]

- திருக்குறள்

Siddha system, the main aim of the treatment is to whittle down, away udarpini (due to mukkutram). Treatment is given not only for complete healing but also for the prevention and rejuvenation.

This is said as follows:

1. Kaapu (Prevention)
2. Neekam (Treatment)
3. Niraivu (Restoration)

KAAPU (PREVENTION)

“மருந்தென வேண்டவாம் யாக்கைக்கு அருந்தியது

அற்றது போற்றி உணின்” [27]

“எதிரதாக் காக்கும் அறிவினார்க் கில்லை

அதிர வருவதோர் நோய்”[27]

- திருக்குறள்

Each person is composed of unique balance of this force, which dynamically intact on physical, physiological and spiritual levels which are responsible for organization, regulation and integration of the body structure, kaapu (prevention).

Prevention and cure of diseases are the basic aims of any medical systems but prevention has been the corner stone of the Siddha system. Siddhar have told as a rational scientific way for prevention of illness. They have described general preventive measures and special measures (which are applicable to disease of certain organs).

NEEKKAM (TREATMENT)

“நோய் நாடி நோய் முதல் நாடியது தணிக்கும்

வுாய் நாடி வாய்ப்பச் செயல்” [27]

“உற்றா னளவும் பிணியளவும் காலமும்

கற்றான் கருதிச் செயல்” [27]

- திருக்குறள்

So it is essential to know the disease etiology and the ways of treating the diseases i.e., medicines, diet habits etc., and also the nature of the patient, severity of illness, and the season should also be kept in mind.

The aim of pinineekkam is based on

- To bring the three doshas in equilibrium.
- Treatment to the subordinate Naadi according to the deranged uyir thathus.
- To build 7 body constituents.
- Treatment of the disease and its symptoms by internal medicines.
- Diet and prevention of disease
- To increase natural immunity.

"விரேசனத்தால் வாதம் தாழும்" [28]

- நோய் நாடல் நோய் முதல் நாடல் திரட்டு

Vatha disease can be brought down by viresanam. So after purgation, the trial medicines are given to treat "Azhal Thalainokkadu"

They are:

Sangu Chunnam 130mg twice a day with ghee.

Preventive aspects are very much stressed in all Siddha literature.

"முக்கால் மலமது பொல்லாத வாய்வு மூன்று தும்மல்
சிக்கா மலாறு சலதரை விட்டுச் சிறுநடையும்
மைக்காடு கொண்ட விழியாய் ! மனிதர்க்கு வாய்ப்பதெனில்
எக்கால மும்பிணி வாராது: காயம் இரும் பொக்குமே" [29]

- சித்த மருத்துவாங்கச் சுருக்கம்

These denote Siddhar`s are giving more importance to preventive aspects.

Anupanam also known as "Thunai Marunthu" is commonly translated as vehicle, adjuvant, supporting, concurrent drug therapy. In Siddha system of medicine the adjuvant is one of the most important things during therapy.

"அனுபானத்தாலே யவிழ்தம் பலிக்கும்
இனிதான சுக்கு கன்னல் இஞ்சிஇ பினுமுதகங்கால்
கோமியம் பால் முலைப்பால் கோநெய் தேன் வெற்றிலை நீர்

ஆமிதை யாராய்ந்து செய்யலாம்'' [30]

- தேரையர் வெண்பா

The above stanza represents the substances commonly used as Anupanam.

PATHIYAM

During the course of treatment the patients are advised to take the following diet items and omit some of the food items and physical activities. This form of medical advice in Siddha system of medicine is termed as pathiyam which is very important in Siddha system of medicine.

பத்திய பலன்:

''பத்தியந்தி னாலே பலனுண்டா கும்மருந்து

பத்தியங்கள் போனாற் பலன்போகும் - பத்தியத்திற்

பத்தியமே வெற்றிதரும் பண்டிதருக் காதலினாற்

பத்தியமே யுத்தியென்று பார்'' [30]

- தேரையர் வெண்பா

''பத்தியத்தா லுண்டாகும் பண்டிதற்குப் பேராண்மை

புத்தியத்தா லுண்டாகும் பண்டிதங்கள்'' [30]

- தேரையர் வெண்பா

The pathiyam commonly told in Siddha literature are,

1. Kadum pathiyam
2. Migakadum pathiyam
3. Itcha pathiyam
4. Uppila pathiyam

In patharthaguna chinthamani the following dietary things are advised to avoid.

''கடுகு நற்றிலத் தெண்ணெய் கூழ் பாண்டங்கள் கடலை

வடுக தாகிய தெங்கமா வடுக்கை நற்காயம்

மடிவிலாத வெள்ளுள்ளி கொள் புகையிலை மது பெண்

இடறு பாகலோடகத்தி நீக்கிடலிச்சா பத்தியம்" [30]

- தேரையர் வெண்பா

1. கடுகு *(Brassica nigra)*
2. பலா *(Artocarpus heterophyllus)*
3. கல்யாண பூசணிக்காய் (*Cucurbita pepo*)
4. மாங்காய் *(Magifera indica)*
5. புகையிலை *(Nicotiana tabacum)*
6. கடலை *(Arachis hypogaea)*
7. தேங்காய் *(Cocos nucifera)*
8. பூண்டு *(Allium sativum)*
9. காயம் *(Allium cepa)*
10. அகத்தி *(Sesbania grandiflora)*
11. எண்ணெய்
12. பெண்சேர்க்கை
13. மது

- இவை கூடாதாம்

IN THERAIYAR VENBA,

"இலவணம் புளிகடு வெண்ணாலு முதலாக

வொவொரு குணமா யொழிவாய் - நவிலிறைச்சி

கூழ்ப்பாண்ட மச்சம் பெண் கோத்திரங் கொள் பிரமபத்ரி

தீழ்ப்பாகு மெத்தவிதுசீ" [30]

- தேரையர் வெண்பா

1. உப்பு (*Sodium Chloride)*
2. புளி *(Tamarindus indica)*
3. கடுகு *(Brassica nigra)*
4. எள் *(Sesamum indicum)*

ஆகியவைகள் மருந்து முறிவுப் பொருள்களாமாகையில் அவற்றையும் நீக்க வேண்டும்.

DIET

In patharthaguna chinthamani the following diet are advised to Vatha patients.

"செங்கழநீர் கோட்டந் தேன் மிளகு நல்லெண்ணெய்

தங்க பெருங் காயந் தழதாழை எங்கெங்கும்

கூட்டுசிறு முத்துநெய் கோதில் உளுந்திவைகள்

வாட்டும் அனி லத்தை மதி" [31]

- பதார்த்தகுண சிந்தாமணி

1. தேன் *(Honey)*
2. நல்லெண்ணெய் *(Sesame oil)*
3. நெய் *(Ghee)*
4. செங்கழுநீர் *(Pontederia vaginalis)*
5. உளுந்து *(Vigna mungo)*
6. கோட்டம் *(Costus speciosus)*
7. தழுதாழை *(Clerodendron phlomidis)*
8. மிளகு *(Piper nigrum)*
9. சிறுமுத்து *(Ricinus communis)*
10. பெருங்காயம் *(Ferula asafetida)*

NIRAIVU (MEDICAL ADVICE)

- Patients are advised to live away from polluted area.
- Patients are advised to avoid cold items like ice water.
- Patients are advised to bath in warm water.
- Patients are advised to lead a stress and strain free life.
- The hair should be dried well after the bath.
- Patients are advised to do yogasanas.

YOGA

Yoga means union. Yoga makes reunion of the embodied individual with the universal soul. This is the goal of human life and Endeavour.

Yogic way of life helps a person directly to hold his physical forces in balance and indirectly develop his mental and spiritual powers.

Asanas, Mudras, Banhas, Kriyas and Pranayama besides the self-imposed restrictions constitute the physical basis of yoga. This practices train the body and mind for spiritual perfection.

Yoga practice will tone up the nervous, Iymphatics, and muscular systems and keep them in perfect health. The respiratory muscles become strong and the respiratory passage will be cleared of all impurities [32].

Minor structural and functional defects of the body will be rectified by the systematic practice of yogasanas and breathing practice.

The following Asanas are for **Azhal Thalainokkadu** patients:

1. Sarvangasana
2. Savasana
3. Halasana
4. Vajrasana

YOGASANAS FOR AZHAL THALAINOKKADU

Fig: Sarvangasana

Fig: Vajrasana

Fig: Savasana

Fig: Halasana

MODERN ASPECT

MODERN ASPECT

ANATOMY OF THE NOSE AND PARANASAL SINUSES

Nose is the complex structure and comprises the external nose, nasal cavity and paranasal sinuses.

EXTERNAL NOSE

It shaped as a triangular pyramid. The supporting frameworks consist of bony part and cartilaginous part.

BONY PART

It forms the upper part of the external nose. It consists of,

1. Anterior part of body of the maxilla with its frontal process
2. Nasal bones
3. Nasal spine of the frontal bone

CARTILAGENOUS PART

It supports the lower part of the external nose. It consists of,

1. Single central septal cartilage
2. Two upper nasal cartilages
3. Two lower nasal cartilages
4. Small alar cartilages

THE BONY PART

The nasal cavity is divided into right and left halves by the median septum and extends from anterior nasal to the posterior nasal apertures or choane, where it communicates with the nasopharynx.

FLOOR: is formed by the palatine process of the maxilla and palatine bone.

ROOF: has anterior slopping and is formed by the nasal bones. Central part is horizontal and is formed by cribriform plate of the ethmoid bone. The posterior slopping part is formed by undersurface of body of the sphenoid.

MEDIAL WALL: is formed by the septum.

LATERAL: is formed by maxilla and ethmoid bone.

PARANASAL SINUSES

Paranasal sinuses are air filled spaces in bones of the skull. These air filled cavities lined by an evagination of the mucous membranes of the nose form the nasal cavity in to the substance of adjacent skull bones. They are in direct communication with the skull through their opening called ostia.

There are four pairs of sinuses, and are conveniently divided into an anterior and posterior group.

ANTEROR GROUP

1. Frontal

2. Ethmoid

3. Maxillary

All these sinuses drain into the middle meatus of nose.

POSTERIOR GROUP

1. Posterior Ethmoidal drain into superior meatus.

2. Sphenoid into the sphenoethmoidal recess.

FRONTAL SINUS

Each frontal sinus is situated between the inner and outer tables of frontal bone and deep to the supra orbital margin. It varies in shape and size and is often loculated. The two frontal sinuses are often asymmetric and the intervening bony septum is thin and often obliquely placed or may even be deficient. Frontal sinus

maybe absent on one or both sides or it may be very large extending into orbital plate in the roof of the orbit.

ETHMOID SINUS

Ethmoidal sinuses are thin walled air cavities in the lateral masses of ethmoid bone. Their number varies from 3 to 18. They occupy the space between upper third of lateral nasal wall and the medial wall of orbit. Clinically ethmoidal sinuses are divided into anterior ethmoidal group which open into the middle meatus and posterior ethmoidal group which opens into the superior meatus.

SPHENOID SINUS

It occupies the body of sphenoid. The two, right and left sinuses are rarely symmetrical and are separated by a thin bony septum which is often obliquely placed and may ever be deficient (compare frontal sinus). Ostium of the sphenoid sinus is situated in the upper part of its anterior wall and drains into sphenoethmoidal recess.

MAXILLARY SINUS (ANTUM OF HIGHMORE)

It is the largest paranasal sinuses and occupies the body of maxilla. It is pyramidal in shape with base towards lateral wall of nose and apex directed laterally into the zygomatic process. On an average, maxillary sinus has a capacity of 15 ml in an adult.

MUCOSAL SURFACE OF PARANASAL SINUSES

Paranasal sinuses are lined by mucous membrane which is continuous with that of the nasal cavity through the ostia of sinuses. It is thinner and less vascular compared to that of the nasal cavity. Histologically it is ciliated columnar epithelium with goblet cells which secrete mucus. Cilia are more marked near the ostia of sinuses and help in drainage of mucus into the nasal cavity.

ANATOMY OF PARANASAL SINUSES AND NASAL CAVITY

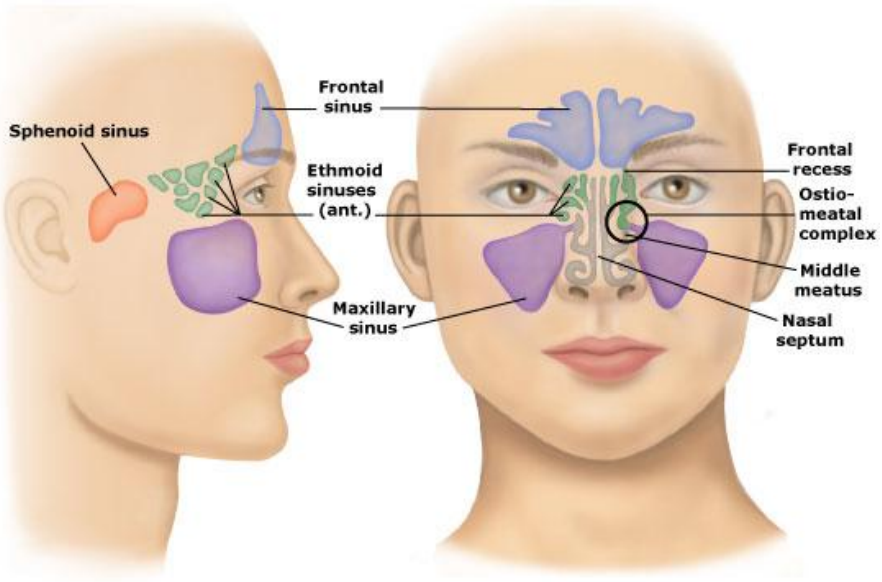


Fig: Anatomy of Paranasal Sinuses

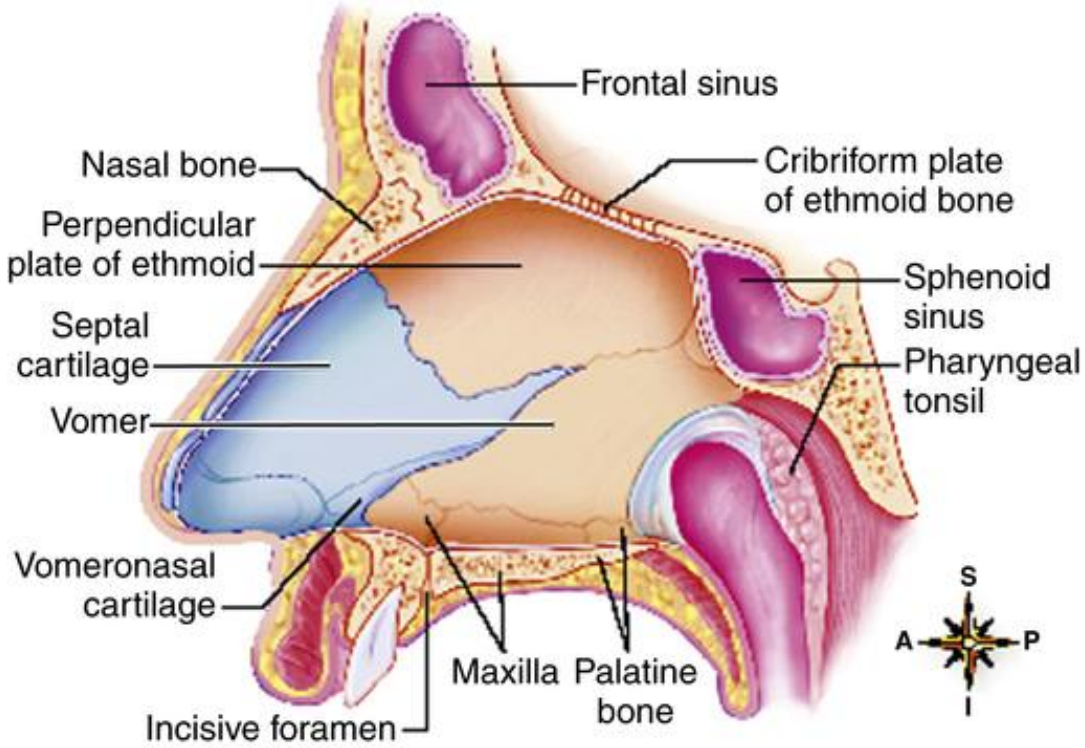


Fig: Lateral Wall of the Nasal Cavity

DEVOLOPMENT OF PARANASAL SINUSES

Paranasal sinuses develop as outpouchings from the mucous membrane of lateral wall of nose. At birth only the maxillary and ethmoidal sinuses are crescent and are large enough to be clinically significant.

Growth of sinuses continues during childhood and adult life. Radiologically maxillary sinuses can be identified at 4-5 months, ethmoidal at 1 year, frontal at 6 years and sphenoid at 4 years.

PHYSIOLOGY OF PARA NASAL SINUSES

FUNCTIONS OF PARANASAL SINUSES

It is not clear why nature provided paranasal sinuses. Probable functions of paranasal sinuses are:

1. Air-conditioning of the inspired air by providing large surface area over which the air is humidified and warmed.

2. To provide resonance to voice.

3. To act as thermal insulators to protect the delicate structures in the orbit and the cranium from variations of intranasal temperature.

4. To lighten the skull bones.

5. Sinus formation in the cranial bones helps in reducing weight of facial bones and thus helps in balance of head.

VENTILATION OF SINUSES

Ventilation of paranasal sinuses takes place through their ostia. During inspiration air current cause negative pressure in the nose and this varies from -6mm to -200mm of H_2O depending on the force of inspiration. During expiration, positive pressure is created in the nose and this sets up eddies which ventilate the sinuses. Thus ventilation of sinuses is paradoxical. They are emptied of air during inspiration and filled with air during expiration.

MUCUS DRINAGE OF SINUSES

Mucus secreted in the paranasal sinuses travels to the ostium in a spiral manner. Here the cilia are very active and propel it into the meatus from where it is carried to the pharynx. The mucus from anterior groups of sinuses travels along the respective lateral pharyngeal gutter situated behind the posterior pillar and that from posterior group is spread over the pharyngeal wall to be finally swallowed in infections of the anterior group of sinuses, lateral lymphoid bands, situated behind the posterior pillars, gets hypertrophied.

SINUSITIS

Sinusitis is the inflammatory condition of the mucous membrane lining of the sinuses. It may be of two types.

1. Acute sinusitis

2. Chronic sinusitis

ACUTE SINUSITIS

Acute sinusitis is the acute inflammation of the sinus mucosa. This is having a rapid onset with severe symptoms and a sharp course.

CHRONIC SINUSITIS

Chronic sinusitis is a disorder, i.e. inflammation of the sinus mucosa for a long time lasting for months or years. Most important cause of chronic sinusitis is failure of acute infection to resolve. [33] [34]

ACUTE SINUSITIS IN THE ADULT

Acute inflammation of sinus mucosa is called acute sinusitis. The sinus most commonly involved is the maxillary followed in turn by ethmoid, frontal and sphenoid. Very often more than one sinus is infected (multi sinusitis). Sometimes all the sinuses of one or both sides are involved simultaneously (pansinusitis).

SINUSITIS

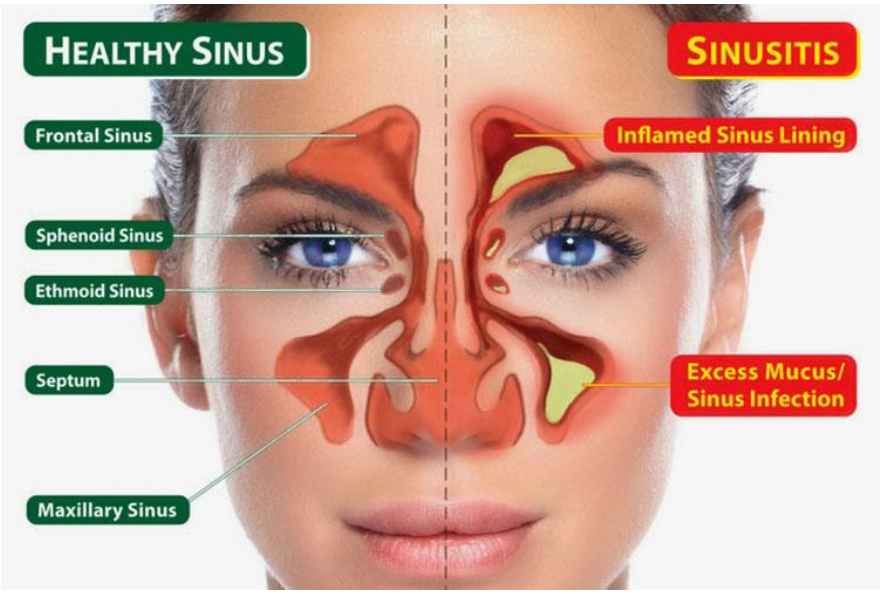


Fig: Healthy Sinus Vs Inflamed Sinus

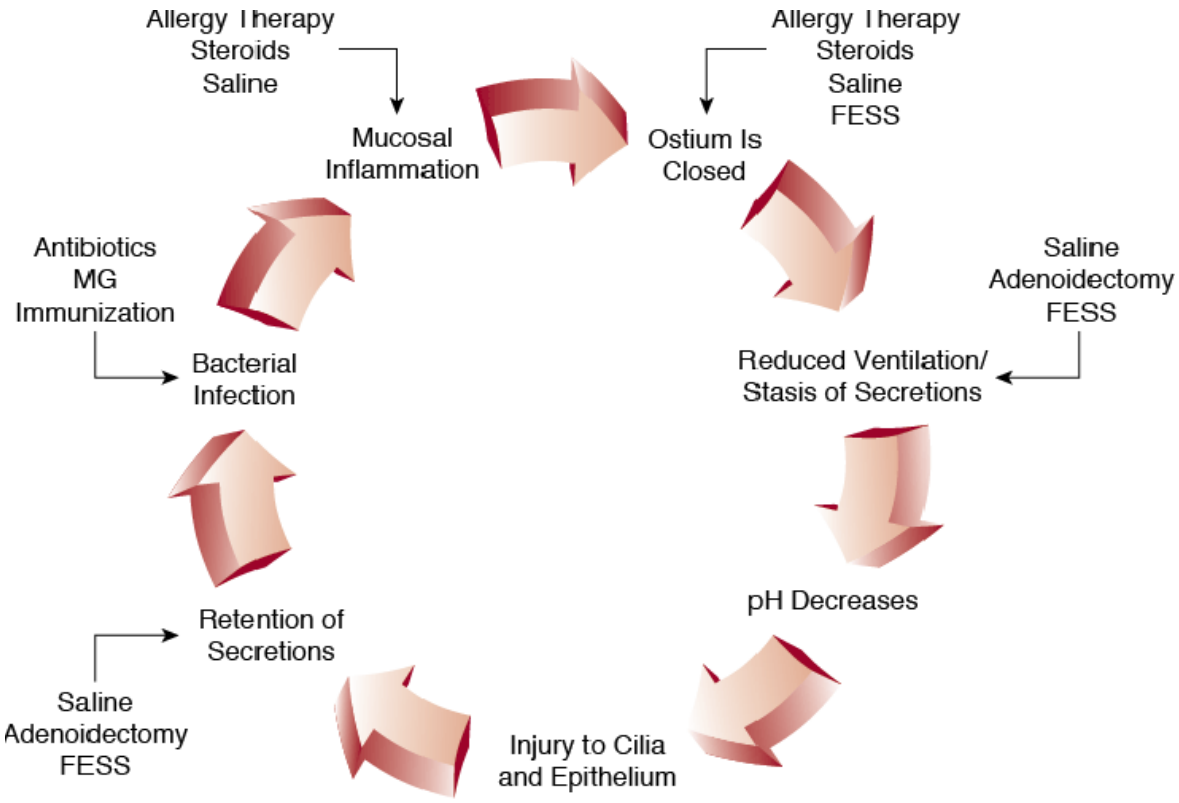


Fig: Pathophysiology of Sinusitis

A sinusitis may be opened or closed type depending on whether the inflammatory products of sinus cavity can drain freely into the nasal cavity through the natural ostia or not. A closed sinusitis causes more severe symptoms and is also likely to cause complications.

AETIOLOGY OF SINUSITIS IN GENERAL

A. EXCITING CAUSES

1. NASAL INFECTIONS

Sinus mucosa is a continuation of nasal mucosa and infections from nose can travel directly by continuity or by way of submucosal lymphatics. Most common cause of acute sinusitis is viral rhinitis followed by bacterial invasion.

2. SWIMMING AND DIVING

Infected water can enter the sinuses through their ostia. High content of chlorine gas in swimming pools can also set up chemical inflammation.

3. TRAUMA

Compound fractures or penetrating injuries of sinuses-frontal, maxillary and ethmoid may permit direct infections of sinus mucosa. Similarly barotrauma may be followed by infection.

4. DENTAL INFECTIONS

This applies to maxillary sinus. Infection from the molar to premolar teeth or their extraction may be followed by acute sinusitis.

B. PREDISPOSING CAUSES

LOCAL

1. OBSTRUCTION TO SINUS VENTILATION AND DRINAGE

Normally sinuses are well ventilated. They also secrete small amount of mucus, which by auxiliary movement, is directed to the sinus ostia from where it drains into the nasal cavity. Any factors which interfere with this function can cause sinusitis due to stasis of secretions in the sinus.

They are

a. Nasal packing

b. Deviated septum

c. Hypertrophic turbinates

d. Oedema of sinus ostia due to allergy

e. Nasal polyps

f. Structural abnormality of ethmoidal air cells.

g. Benign or malignant neoplasm

2. STASIS OF SECRETION IN THE NASAL CAVITY

Normal secretions of nose may not drain into the nasopharynx because of their viscosity (enlarged adenoids, choanal atresia) and get infected.

3. PREVIOUS ATTACKS OF SINUSITIS

Local defenses of sinus mucosa are already damaged.

GENERAL

1. ENVIRONMENT

Sinusitis is common in cold and wet climate. Atmospheric pollution, smoke, dust and overcrowding also predispose to sinus infection.

2. POOR GENERAL HEALTH

Recent attack of exanthematous fever (measles, chicken pox, whooping cough), nutritional deficiencies, systemic disorders (diabetes, immune deficiency syndromes)

3. BACTERIOLOGY:

Most cases of acute sinusitis start as viral infections followed soon by bacterial invasion.

The aerobic bacteria most often responsible for acute suppurative sinusitis are

a. Streptococcus pneumoniae

b. Haemophilus influenzae

c. Streptococcus group A

d. Staphylococcus aureus

e. Neisseria species

f. Gram-negative bacilli

g. Klebsiella species

h. Branhamella catarrhalis

i. Pseudomonas species

ANAEROBIC BACTERIA

Fusobacteria, Anaerobic streptococci, Bacteriodes species

VIRUSES

Rhinovirus, Influenza virus and Parainfluenza virus. [35] [36]

PATHOLOGY OF SINUSITIS

Acute inflammation of sinus mucosa causes hyperaemia, exudation of fluid, outpouring of polymorphonuclear cells and increased activity of serous and mucous glands. Depending on the virulence of organism, defenses of the host and capability of the sinus ostium to drain exudates, the disease may be mild (non-suppurative) or severe (suppurative). Initially the exudates are serous; later it may become mucopurulent or purulent. Severe infections cause destruction of mucosal lining failure of the ostium to drain results in empyema of the sinus and destruction of its bony walls leading to complications. Dental infections are very fulminating and soon result in suppurative sinusitis.

ACUTE MAXILLARY SINUSITIS

AETIOLOGY

1. Most commonly it is viral rhinitis which spreads to involve the sinus mucosa. This is followed by bacterial invasion.

2. Diving and swimming in contaminated water

3. Dental infections

They are important source of maxillary sinusitis. Roots of premolar and molar teeth are related to the floor of sinus and may be separated only by a thin layer of mucosal covering. Peri-apical dental abscess may burst into the sinus or the root of a tooth during extraction may be pushed into the sinus. In case of oroantral fistula following tooth extraction, bacteria from oral cavity enters the maxillary sinus.

4. Trauma of the sinus

Compound fractures, penetrating injuries or gunshot wounds may be followed by sinusitis.

CLINICAL FEATURES

1. CONSTITUTIONAL SYMPTOMS

It consists of fever, general malaise and body aches.

2. HEAD ACHE

Usually this is confined to forehead and may be confused with frontal sinusitis.

3. PAIN

Typically it is situated over the upper jaw, but may be referred to the gums or teeth. For this reason patient may primarily consult a dentist. Pain is aggravated by stooping, coughing or chewing. Occasionally pain is referred to the ipsilateral supraorbital region and thus may stimulate frontal sinus infection.

4. TENDERNESS

Pressure or tapping over the anterior wall of antrum produces pain.

5. REDNESS AND OEDEMA OF CHEEK

It`s commonly seen in children. The lower eye lid may become puffy.

6. NASAL DISCHARGE

This is excess drainage from nose ranging from clear fluid to thick mucus.

7. POST NASAL DISCHARGE

Pus may be seen on the upper soft palate on posterior Rhinoscopy.

PATHOLOGY

1. CATARRHAL STAGE:

Initially there is congestion and oedema of the mucosa of the sinus and the ostium. There is hypertrophy of the mucous glands.

2. EXUDATION

Due to increased glandular activity, secretions collect in the sinuses, which are mucoid initially.

3. PURULENT STAGE

The infection may progress to purulent stage and there is thick mucopurulent discharge which drains out through the ostium. At this stage the cilia may become paralysed or destroyed sometimes the ostium becomes blocked due to mucosal oedema and the secretions become point up in a sinus producing acute empyema of the sinus.

4. STAGE OF COMPLICATION

If untreated it can lead to further complications.

5. STAGE OF RESOLUTION

The infection may be resolve at any stage depending upon the virulence of the organism, resistance offered by the body and antibiotics administered.

ACUTE FRONTAL SINUSITIS

AETIOLOGY

1. Usually follows viral infections of upper respiratory tract followed by later bacterial invasion.

2. Entry of water into the sinus during diving or swimming.

3. External trauma to the sinus. E.g.: Fractures or penetrating injuries.

4. Oedema of middle meatus, secondary to associated ipsilateral maxillary or ethmoid sinus infection.

CLINICAL FEAUTERS

1. **FRONTAL HEAD ACHE**

Usually this causes severe and localized over the affected sinus. It shows characteristic periodicity i.e. comes upon waking gradually increases, reaches its peak by about midday and then starts subsiding. It is also called "office headache" because of its presence only during the office hours.

2. **TENDERNESS**

Pressure upwards on the floor of frontal sinus just above the medical can thus causes exaquisite pain. It can also be elicited by tapping over the anterior wall of frontal sinus in the medial part of supra orbital region.

3. **OEDEMA OF UPPER EYE LID**

With suffused conjuctiva and photophobia.

4. **NASAL DISCHARGE**

A vertical streak of mucopus is seen high up in the anterior part of middle meatus. This may be absent if the ostium is closed with no drainage. Nasal mucosa is inflamed in the middle meatus.

COMPLICATIONS

1. Orbital cellulitis

2. Osteomyelitis of frontal bone and fistula formation.

3. Meningitis, extradural abscess or frontal lobe abscess if infection breaks through the posterior wall of the sinus.

4. Chronic frontal sinusitis if the acute infection is neglected or improperly treated.

ACUTE ETHMOID SINUSITIS

Acute ethmoid sinusitis is often associated with infection of ethmoid sinuses. Ethmoid sinusitis is more often involved in infants and young children.

CLINICAL FEATURES

1. PAIN

It is localized over the bridge of the nose, medial and deep to the eye. It is aggravated by movements of the eye ball.

2. OEDEMA OF LIDS

Both eyelids become puffy and swollen. There is increased lacrimation. Orbital cellulitis is an early complication in such cases.

3. NASAL DISCHARGE

On anterior rhinoscopy pus may be seen in middle or superior meatus depending on involvement of anterior or posterior group of ethmoid sinuses.

COMPLICATIONS

1. Orbital cellulitis and abscess.

2. Visual deterioration and blindness due to involvement of optic nerve.

3. Cavernous sinus thrombosis.

4. Extradural abscess, meningitis or brain abscess.

ACUTE SPHENOID SINUSITIS

AETIOLOGY

Isolated involvement of sphenoid sinus is rare. It is often a part of pansinusitis or is associated with infection of posterior ethmoid sinuses.

CLINICAL FEATURES

1. **HEAD ACHE**

   It is usually localized to the occiput or vertex. Pain may also be referred to the mastoid region.

2. **POST NASAL DISCHARGE**

   It can only be seen on posterior rhinoscopy. A streak of pus may be seen on the roof and posterior wall of nasopharynx or above the posterior end of middle turbinate.

CHRONIC SINUSITIS

CHRONIC SINUSITIS IN GENERAL

Sinus infection lasting for months to years is called chronic sinusitis most important cause of chronic sinusitis is failure of acute infection to resolve.

PATHOPHYSIOLOGY

Acute infection destroys normal ciliated epithelium impairing drainage from the sinus. Pooling and stagnation of secretions in the sinus invites infection. Persistence of infection causes mucosal changes, such as loss of cilia, oedema and polyp formation, thus continuing the vicious cycle.

PATHOLOGY

In chronic infections, process of destruction and attempts at healing proceed simultaneously. Sinus mucosa becomes thick and polypoidal (hypertrophic sinusitis) or undergoes atrophy (atrophic sinusitis). Surface epithelium may show desquamation, regeneration or metaplasia. Submucosa is infiltrated with lymphocytes

and plasma cells and may show micro abscesses granulations, fibrosis and polyp formation.

BACTERIOLOGY

Mixed aerobic and anaerobic organisms are often present.

CLINICAL FEATURES

They are often vague and similar to those of acute sinusitis but of lesser severity, purulent nasal discharge is the commonest complaint. Foul smelling discharge suggests anaerobic infection. Local pain and headache are often not marked except in acute exacerbations. Some patients complain of nasal stuffiness and anosmia.[37]

COMPLICATIONS OF SINUSITIS

Complications are said to arise when infection spreads into or beyond the walls of the sinus. They are grouped as under

1. Orbital complications
2. Osteomyelitis
3. Intra cranial
4. Descending infection
5. Focal infections

ORBITAL COMPLICATIONS

Orbit and its contents are closely related to the ethmoid, frontal and maxillary sinuses, but most of the complications, however, follow infections of ethmoid as they are separated from the orbit only by thin lamina of bone - lamina papyracea. Infections travel from these sinuses either by osteitis or as a thrombophlebitic process of ethmoidal veins.

ORBITAL COMPLICATIONS INCLUDES

1. Inflammatory oedema of lids.

2. Subperiosteal abscess

3. Orbital cellulitis

4. Orbital abscess

5. Superior orbital fissure syndrome

6. Orbital apex syndrome

OSTEOMYELITIS

Osteomyelitis is infection of bone marrow and should be different from osteitis which is infection of the compact bone. Osteomyelitis following sinus infection involves either of the following

1. Osteomyelitis of the maxilla
2. Osteomyelitis of frontal bone

INTRA CRANIAL COMPLICATIONS

Frontal, ethmoid and sphenoid sinuses are closely related to anterior cranial fossa and infection from these can cause.

1. Meningitis and encephalitis
2. Extradural abscess
3. Subdural abscess
4. Brain abscess
5. Cavernous sinus thrombosis

DESENDING INFECTIONS

In suppurative sinusitis discharge constantly flows into the pharynx and can cause or aggravate:

1. Otitis Media

2. Pharyngitis and Tonsillitis

3. Persistent Laryngitis and Tracheobronchitis

MUCOCELE OF PARANASAL SINUSES

The sinuses commonly affected by mucocele in the order of frequency are the frontal, ethmoidal, maxillary and sphenoidal. There are two views in the genesis of a mucocele.

1. Chronic obstruction to sinus ostium resulting in accumulation of secretions which slowly expand the sinus and destroys its bony walls.

2. Cystic dilation of mucous gland of the sinus mucosa due to obstruction of its duct. In this case, wall of mucocele is surrounded by normal sinus mucosa. The contents of mucocele are sterile.[38]

INVESTIGATIONS

1. ANTERIOR RHINOSCOPY

Patients should be examined before and after decongestion. Allows viewing of septum and turbinate, limited visualization of posterior upper nasal vault.

2. NASAL ENDOSCOPY

Allows excellent illumination plus visualization of the entire nasal cavity specifically the inferior / middle meatus, sphenoethmoid recess and nasal roof. The 4mm 30 endoscope provides the best overall view good for teaching and photo documentation.

3. NASAL CYTOLOGY

Curetting the non – vasoconstricted in inferior turbinate yields a better specimen than nose-blowing into plastic wrap. Increased neutrophils plus bacteria (or) fungi suggest infection. Increased eosinophils or basophils suggest allergy (or) non allergic rhinitis with eosinohilia (NARES) ciliary motility / election microscopy studies may be performed.

4. RHINOMANOMETRY

a. Anterior rhinomanometry (most common)
   A face mask is used to measure airflow.

b. Pressure sensor – Occludes one nostril and airflow on the other nostril is measured.
c. Posterior rhinomanometry – A face mask is used to measure airflow through either one or both nares while pressure is measured with either a transducer held personally beneath the soft palate or passed along the nasal floor to the nasopharynx.
d. Active rhinomanometry – Patient breathes actively (most common) Passive rhinomanometry – Air is blown through the nasal cavity.
e. Subjective obstruction correlated better with unilateral than bilateral rhinomanometry.
f. Not often used in general clinical practice since time consuming cumbersome and upto 50% test retest variability.
g. Acoustic rhinometry – Relected sound waves are used to assess nasal airway cross – section. Not commonly used. Better for anterior obstruction near the nasal valve.

5. SINO NASAL IMAGING

Best for identification of sinus specification of air-fluid levels, Gross mass and destructive effects and fractured very non-specific for more subtle processes and ethmoid diseases.

6. COMPOUND TOMOGRAPHY (CT)

Generally study of choice for sinus imaging. Excellent demonstration of bony anatomy and mucosal disease, coronal study, provides most information with contiguous 3mm. Secretions done with bone algorithm. Axial scans are generally added when sinus diseases is found. Intravenous contrast is not used except when there is concern regarding extension of infection or neoplastic other process.

7. MAGNETIC RESONANCE IMAGING (MRI)

Offers the advantages of multiplanar imaging without using the prone position necessary for coronal CT (Position not tolerated well by geriatric and paediatric patient). It provides excellent soft tissue definition but fails to image bony anatomy.

8. ULTRA SOUND

Has equally and slightly less sensitivity and specificity than plain radiographs for detecting maxillary sinus fluid but is not reliable for frontal ethmoidal or polypoid disease.

TRIAL MEDICINE

TRIAL MEDICINE

SANGU CHUNNAM

INGREDIENTS

Paalsangu	-	2kg
Lemon juice	-	Required amount

STANDARD OPERATIVE PROCEDURE

PREPARATION

- A purified Paalsangu was grounded and powered filtered with a cloth.
- It was then grinded with lemon juice for 3 hours made into cakes and dried.
- Above processed material was kept inside a mud pot and was closed with lid.
- The mud pot was two times sealed with mud pasted cloth.
- The weight of the cow dung cakes should be 20 times the weight of the sealed mudpot.
- It was incinerated by cow dung cakes and cooled.
- Then Chunnam was collected and kept in an air tight container.
- The Chunnam was tested by mixing the Chunnam in turmeric powder and it became reddish orange colour. [39][40]

DRUG STORAGE

The Chunnam was kept in a sterlised air tight container.

TREATMENT

DURATION	: 48 Days (1 mandalam)
DOSE	: 1 Kundri (130 mg), twice a day
ADJUVANT	: Ghee
INDICATIONS	: Neerkovai, Neerkattu, Paandu, Manjalnoi.

REFERENCE

Anuboga Vaidhiya Navaneetham - part 1 (Pg.no.93) by Abdula Shahib

PROPERTIES OF TRIAL MEDICINE

1. **PAALSANGU**

VERNACULAR NAMES

Tamil	:	Sangu, Sanks
English	:	Conch, Conch shell
Sanskrit	:	Shanka
Telugu	:	Sankhama
Kannada	:	Shankha
Malayalam	:	Sangu
Hindi	:	Shankha

ZOOLOGICAL CLASSIFICATION

Kingdom	:	Animalia
Phylum	:	Mollusca
Class	:	Gastropoda
Family	:	Turbinellidae
Sub family	:	Turbinellinae
Genus	:	Turbinella
Species	:	Pyrum

SOURCES

Indian Ocean Coasts

GUNAM

“கசிவாமி ரத்தபித்தங் கண்ணோய் களேகும்

பசியாறும் வாதம் பறக்கு மிசிவுடனே

தங்குமுளை விரணந் தானகலுமே வெளளைச்

சங்கமது வுண்டா யிற்றான்” [41]

- குணபாடம் தாது சீவ வகுப்பு

2. LEMON

VERNACULAR NAMES

Tamil	:	Elumicham
English	:	Lime
Sanskrit	:	Jambira
Telugu	:	Nimma
Kannada	:	Nimbe
Malayalam	:	Cheru-Naranga
Hindi	:	Ninbu limu

BOTANICAL CLASSIFICATION

Kingdomm	:	Plantae
Clade	:	Angiosperms
Order	:	Sapindales
Family	:	Rutaceae
Genus	:	Citrus
Species	:	C. limon

PHYTOCHEMICALS

Flavanoids	:	Hesperioside
Acids	:	Ascorbic acid, citric acid
Essential oil	:	Isopulegol, limonene, sabinene.
Taste	:	Sour
Thanmai	:	Veppam
Pirivu	:	Kaarpu

GUNAM

“மந்திரிக்கு மந்திரியாய் மன்னனுக்கு மன்னனெத்

தந்திரிக்கு மித்திரன் போற்சாருமே முந்தவரு

கம்பீரமாய்ச் சரக்கின் கெண்ணியமாய் வாகடருக்குச்

சம்பீர மலெலு மிச்சை” [42]

- குணபாடம் மூலிகைவகுப்பு

SANGU CHUNNAM INGREDIENTS

Fig: Paalsangu

Fig: Lemon Juice

PREPARATION OF SANGU CHUNNAM

Fig: Villai dried in Sun light

Fig: Kavasam dried in Sun light

Fig: Pudam Process

Fig: Villai after Pudam Process

Fig: Sangu Chunnam

Fig: Sangu Chunnam-Reaction with Turmeric

MATERIALS AND METHODS

MATERIALS AND METHODS

STUDY DESIGN

A clinical trial on SINUSITIS was conducted at the OPD section of POST GRADUATE, POTHU MARUTHUVAM DEPARTMENT attached to ARIGNAR ANNA HOSPITAL OF INDIAN MEDICINE, Chennai-106, during the period 2016 - 2017.

The study was approved by Institutional Ethics Committee (ICE) and the approval number is GSMC-CH-ME-5/006/2016. The trial was registered in Clinical Trial Registry, India (CTRI) and the CTRI number is CTRI/2018/03/012379

POPULATION AND SAMPLE

The sample consists of all patients satisfying the inclusion and exclusion criteria mentioned below. Population consists of SINUSITIS patients attending the OPD of Arignar Anna Hospital, Arumbakkam, Chennai-106.

SAMPLE SIZE

The sample size was 40 patients.

INCLUSION CRITERIA

- Age between 16 to 60 years
- Both male and female
- Nasal congestion
- Running nose
- Head ache
- Irritation and watering of eyes
- Pain and tenderness over PNS area
- Recurrent sneezing

EXCLUSION CRITERIA (CLINICAL HISTORY)

- Age factor below 16 and above 60 years
- Vulnerable groups
- Diabetes mellitus

- Vasomotor Rhinitis
- Migraine
- Nasal septal deviation
- Otitis media
- Infra orbital trigeminal neuralgia
- Malignancy of PNS

WITH DRAWAL CRITERIA

- Intolerance to the drug and development of any serious adverse effect during trial.
- (If ADR is reported, it should be informed to SCRI) and the patient is directed to RPC.
- Patient turned unwilling during course of trial.
- Poor compliance.
- Any other acute illness which needs a rescue medication.

DURATION OF THE TREATMENT

48 DAYS

EVALUVATION OF CLINICAL PARAMETERS

The history includes past, personal, family, occupation, dietary habits, seasonal history, and associated history.

CLINICAL INVESTIGATIONS

BLOOD

TC, DC, ESR, Hb

Blood glucose

Urea

Total serum cholesterol

URINE ANALYSIS

Albumin

Sugar

Deposits

SPECIFIC INVESTIGATION

X-ray for PNS.

SIDDHA ASSESMENTS

Envagai Thervugal

Neerkuri

Neikuri

A case sheet format was prepared on the basis of the Siddha methodology Ex: Envagai Thervugal, Mukkutram, Nilam, Kaalam, Udal thathukkal, including Neerkuri and Neikuri. Individual case sheet was maintained for each patient at outpatient department.

CONDUCT OF THE STUDY

Azhal Thalainokkadu patients satisfying the inclusion and exclusion criteria will be included in the trial. Informed consent form will be obtained from the patients.

CASE SHEET PROFORMA

All the clinical signs and symptoms of Azhal Thalainokkadu, history of present and past illness, personal history, family history, habits and occupation were recorded. Lab investigations and prognosis were recorded for analysis.

TRIAL MEDICINE

Sangu Chunnam

CLINICAL PROGNOSIS

It is based on the Sinusitis Severity Score (SSS).

RESULTS AND OBSERVATIONS

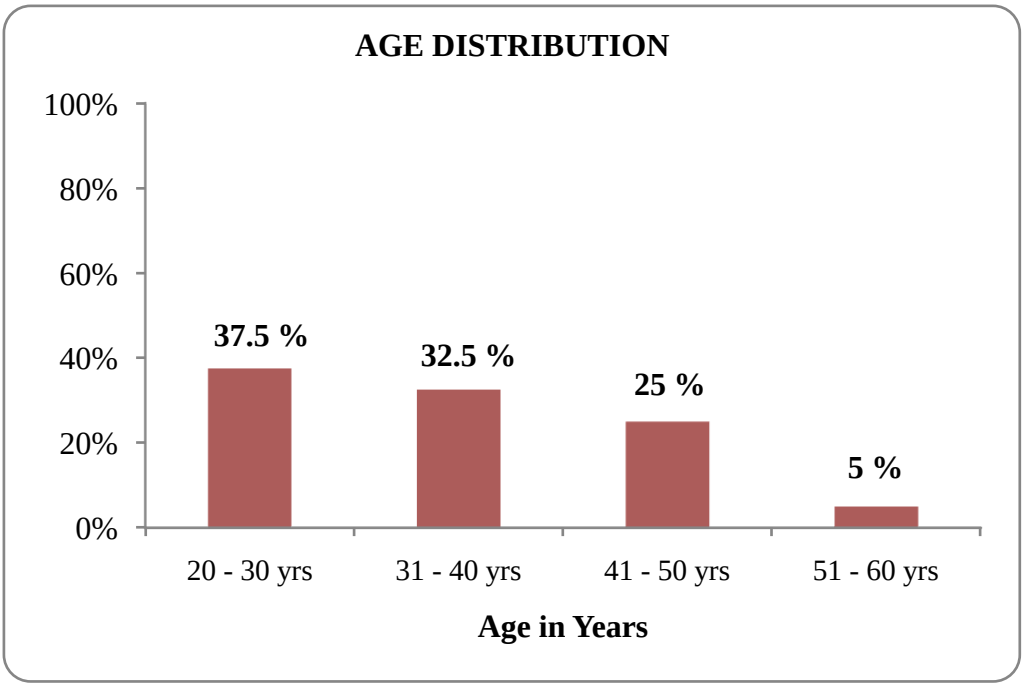
RESULTS AND OBSERVATIONS

The study on **Azhal Thalainokkadu** was carried out in 40 patients in the Department of Pothu Maruthuvam, Government Siddha Medical College, Chennai-106 attached to Arignar Anna Hospital during 2015-2018 were analyzed. The observation were made and tabulated with following criteria:

- Age Distribution
- Gender Distribution
- Occupational Status
- Socio Economic Status
- Duration of Illness
- Dietary Habits
- Seasonal Occurrence
- Thinai
- Mukkutram - Vatham, Pitham, Kabam
- Ezhu Udal Kattugal
- Envagai Thervugal
- Naadi
- Neikuri
- Clinical Prognosis
- Grading of Results

1. AGE DISTRIBUTION

S. No	AGE IN YEARS	NUMBER OF CASES	PERCENTAGE (%)
1	20 - 30 yrs	15	37.5 %
2	31 - 40 yrs	13	32.5 %
3	41 - 50 yrs	10	25 %
4	51 - 60 yrs	2	5 %

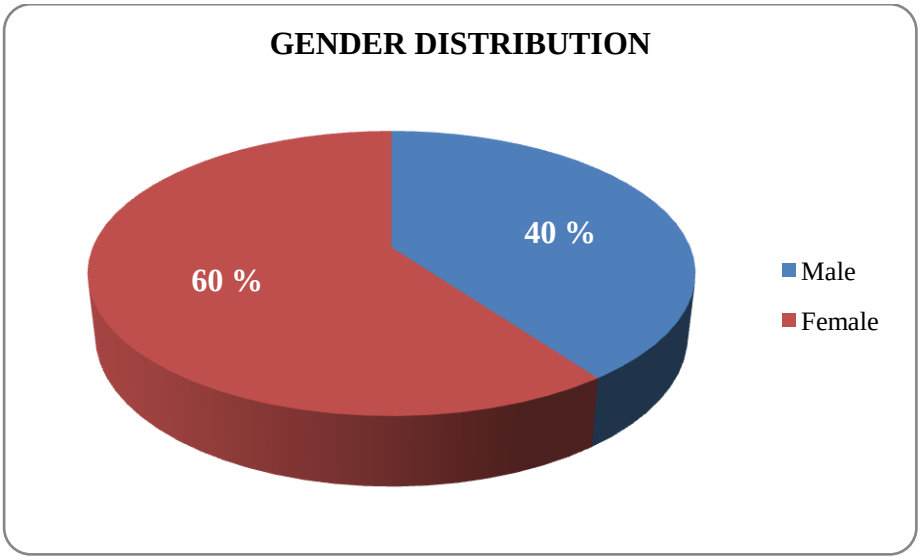


Inference:

According to the above mentioned data, 15 patients (37.5%) were in age group of 20-30 years, 13 patients (32.5%) were in age group of 31-40 years, 10 patients (25%) were in age group of 41-50 years, 2 patients (5%) were in age group of 51-60 years.

2. GENDER DISTRIBUTION

S. No	GENDER	NUMBER OF CASES	PERCENTAGE (%)
1	Male	16	40 %
2	Female	24	60 %

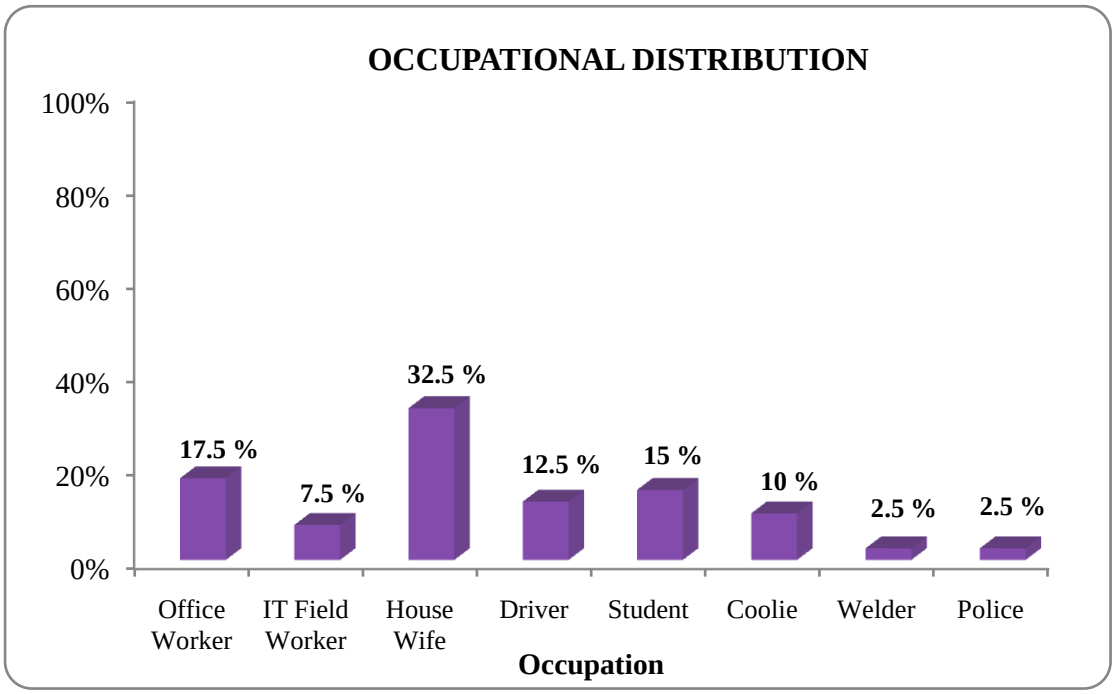


Inference:

According to the above mentioned data, 16 patients (40 %) were Males, 24 patients (60 %) were Females.

3. OCCUPATIONAL DISTRIBUTION

S. No	OCCUPATION	NUMBER OF CASES	PERCENTAGE (%)
1	Office Worker	7	17.5 %
2	IT Field Worker	3	7.5 %
3	House Wife	13	32.5 %
4	Driver	5	12.5 %
5	Student	6	15 %
6	Coolie	4	10 %
7	Welder	1	2.5 %
8	Police	1	2.5 %

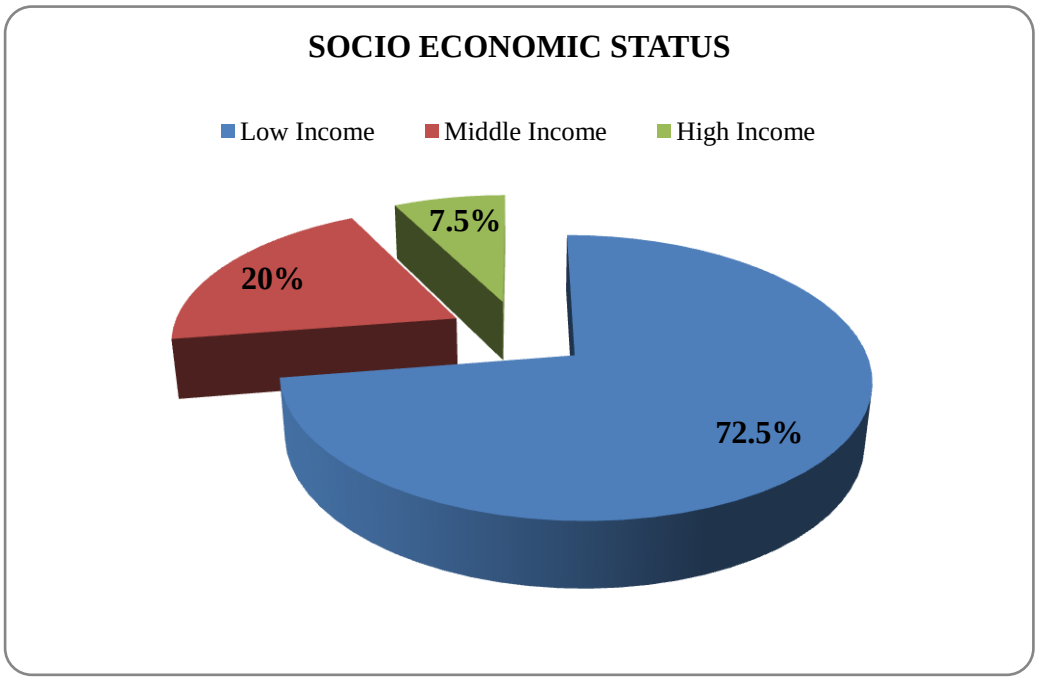


Inference:

Out of 40 patients, 7 patients (17.5%) were Office Workers, 3 patients (7.5%) were from IT Field Workers, 13 patients (32.5%) were House Wives, 5 patients (12.5%) were Drivers, 6 patients (15%) were Students, 4 patients (10%) were Coolie, 1 patient (2.5%) was Welder and 1 patient (2.5%) was Police.

4. SOCIO ECONOMIC STATUS

S. No	SOCIO - ECONOMIC STATUS	NUMBER OF CASES	PERCENTAGE (%)
1	Low Income (below 2 Lakh per annum)	29	72.5 %
2	Middle Income (2 - 5 Lakh per annum)	8	20 %
3	High Income (Above 5 Lakh per annum)	3	7.5 %

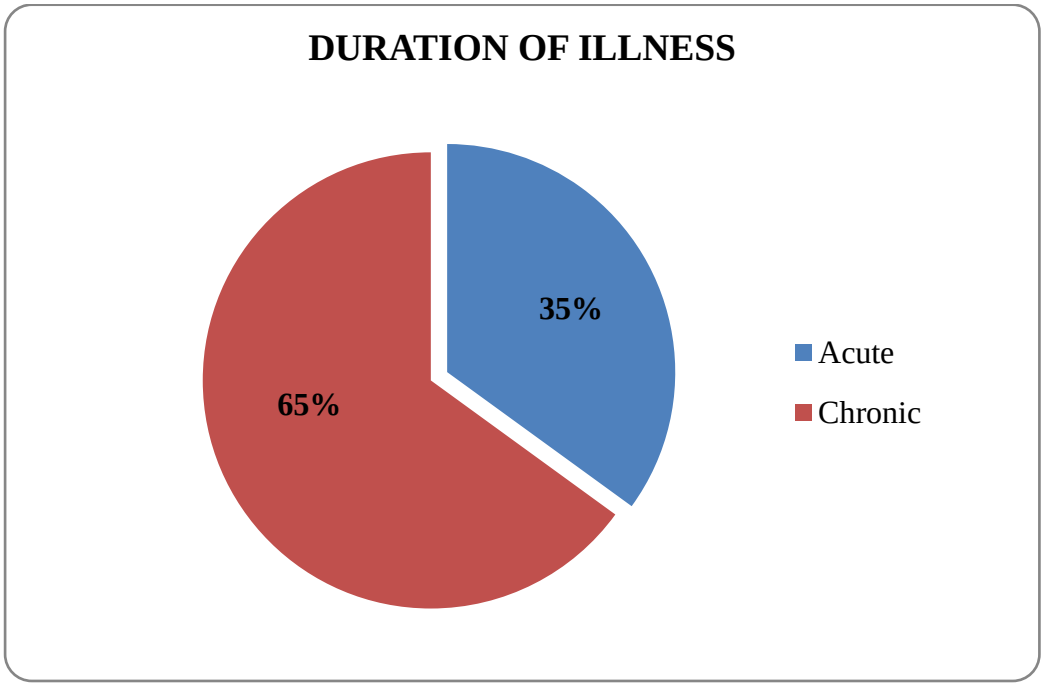


Inference:

According to the above mentioned data, 29 patients (72.5%) were from low economic status, 8 patients (20%) were from moderate economic status and 3 patients (8%) were from high income status.

5. DURATION OF ILLNESS

S. No	DURATION	NUMBER OF CASES	PERCENTAGE (%)
1	Acute < 3 weeks	14	35%
2	Chronic > 3 months	26	65%

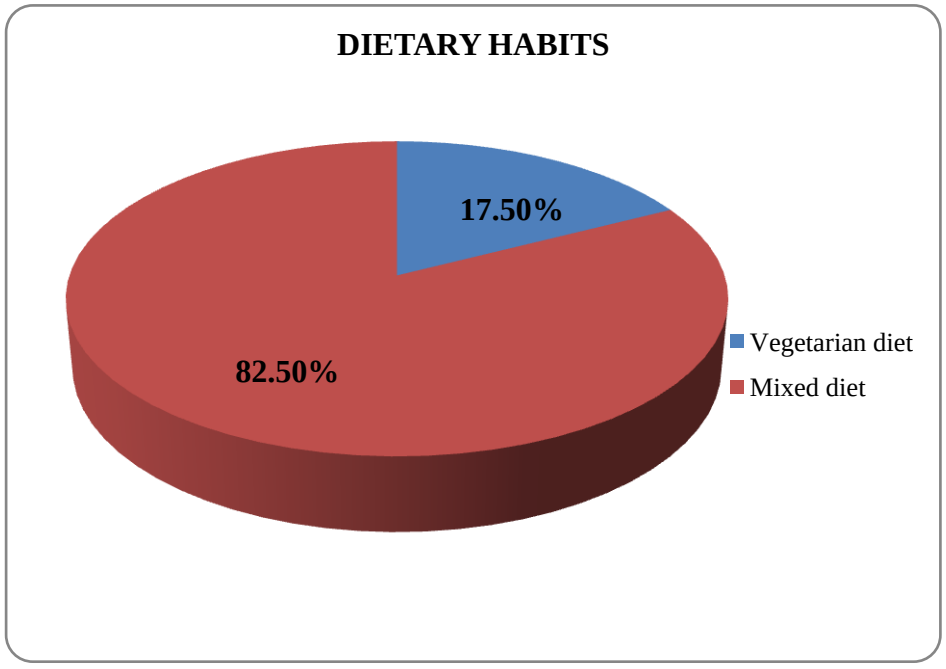


Inference:

Among 40 patients, 26 patients (65%) were in chronic state of the disease and 14 patients (35%) were in acute state of the disease.

6. DIETARY HABITS

S. No	DIETARY HABITS	NUMBER OF CASES	PERCENTAGE (%)
1	Vegetarian diet	7	17.5 %
2	Mixed diet	33	82.5 %

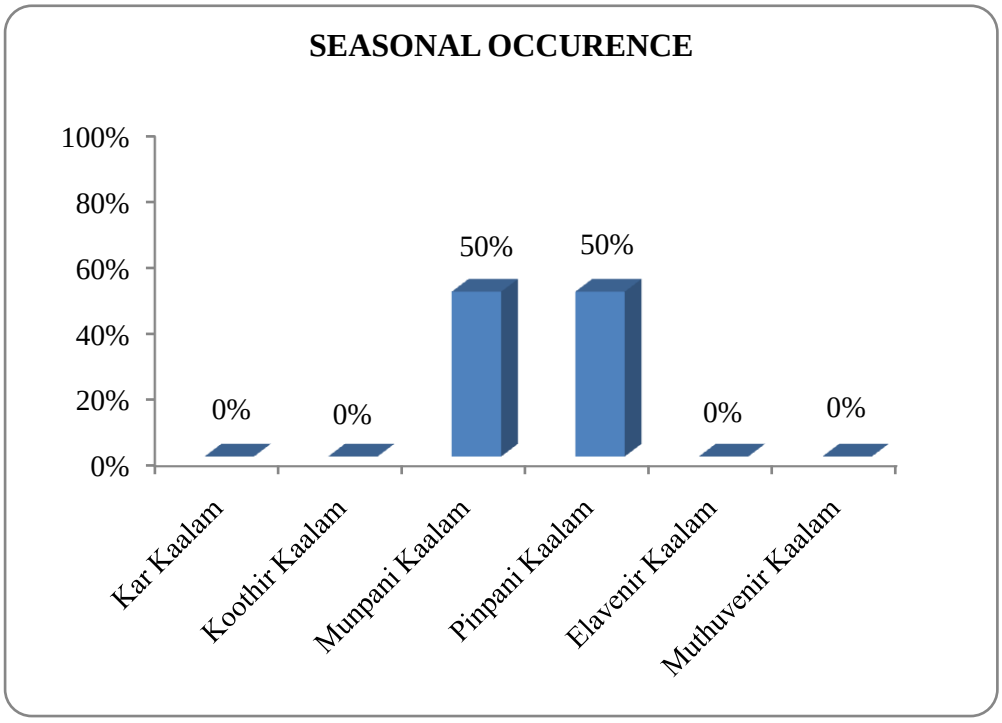


Inference:

Among 40 patients, 7 patients (17.5%) were taking vegetarian food and 33 patients (82.5%) were taking mixed diet.

7. SEASONAL OCCURRENCE

S. No	KAALAM (SEASON)	NUMBER OF CASES	PERCENTAGE (%)
1	Kar Kaalam (Aug 17 - Oct 16, 2017)	0	0%
2	Koothir Kaalam (Oct 17 - Dec 15, 2017)	0	0%
3	Munpani Kaalam (Dec 16, 2017 - Feb 12, 2018)	20	50%
4	Pinpani Kaalam (Feb 13 - Apr 13, 2018)	20	50%
5	Elavenir Kaalam (Apr 14 - Jun 14, 2018)	0	0%
6	Muthuvenir Kaalam (Jun 15 - Aug 16, 2018)	0	0%

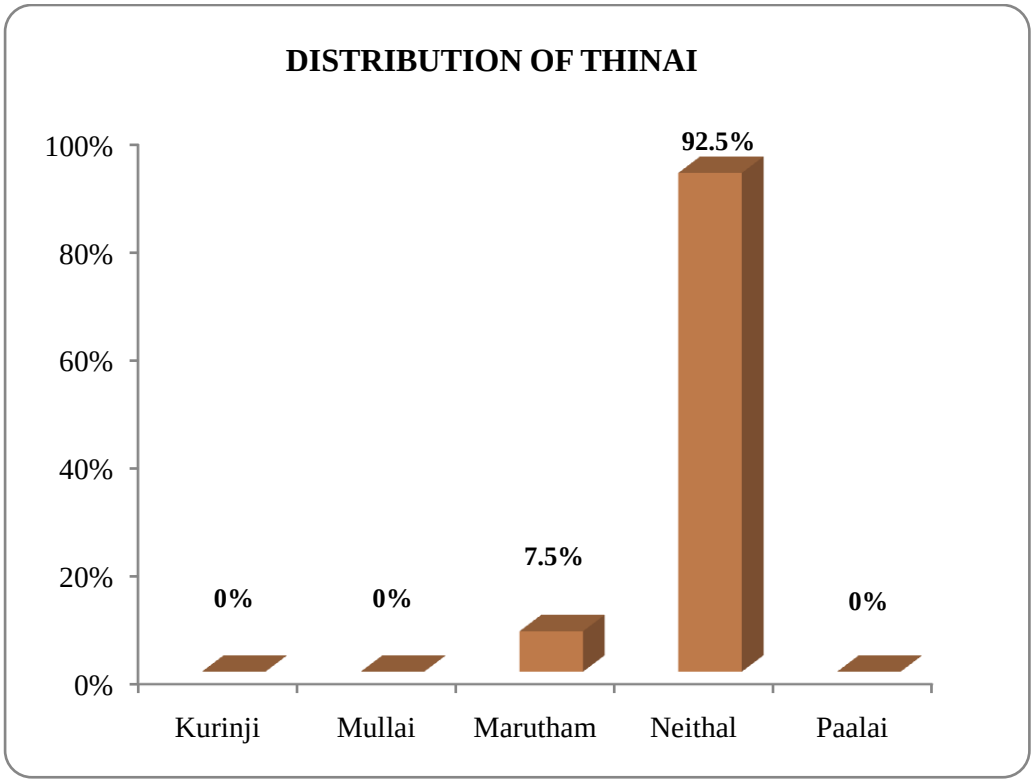


Inference:

Among 40 patients, 20 patients (50%) were noted in Munpani Kaalam and 20 patients (50%) were noted in Pinpani Kaalam.

8. DISTRIBUTION OF THINAI

S. No	THINAI	NUMBER OF CASES	PERCENTAGE (%)
1	Kurinji	0	0 %
2	Mullai	0	0 %
3	Marutham	3	7.5 %
4	Neithal	37	92.5 %
5	Paalai	0	0 %

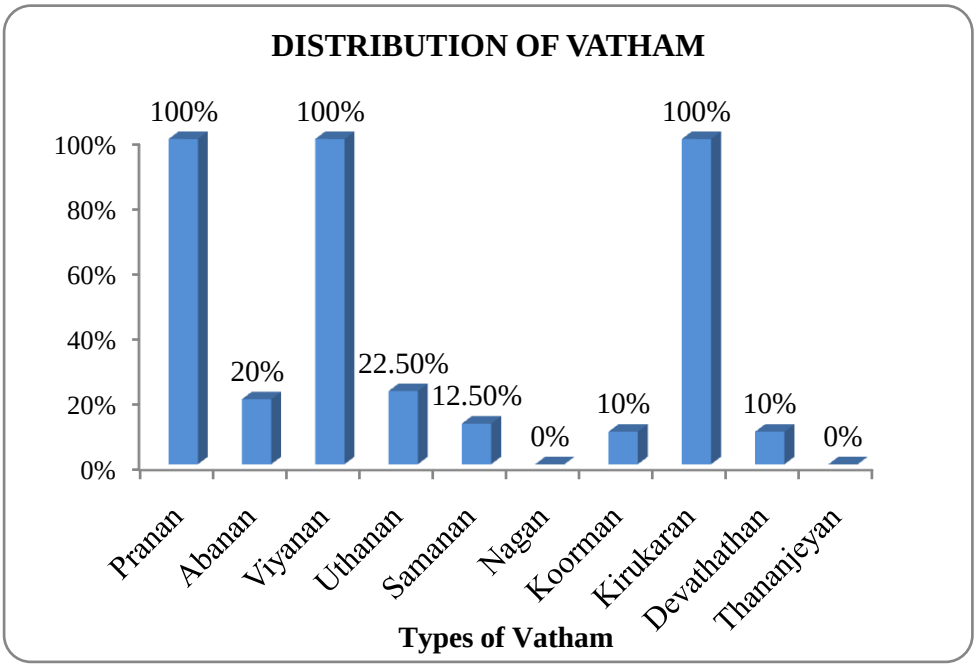


Inference:

Among 40 patients, 3 patients (7.5%) were from Marutha nilam and 37 patients (92.5%) were from Neithal nilam.

9. DISTRIBUTION OF MUKKUTRAM - VATHAM

S. No	VATHAM	NUMBER OF CASES	PERCENTAGE (%)
1	Pranan	40	100%
2	Abanan	8	20%
3	Viyanan	40	100%
4	Uthanan	9	22.50%
5	Samanan	5	12.50%
6	Nagan	0	0%
7	Koorman	4	10%
8	Kirukaran	40	100%
9	Devathathan	4	10%
10	Thananjeyan	0	0%

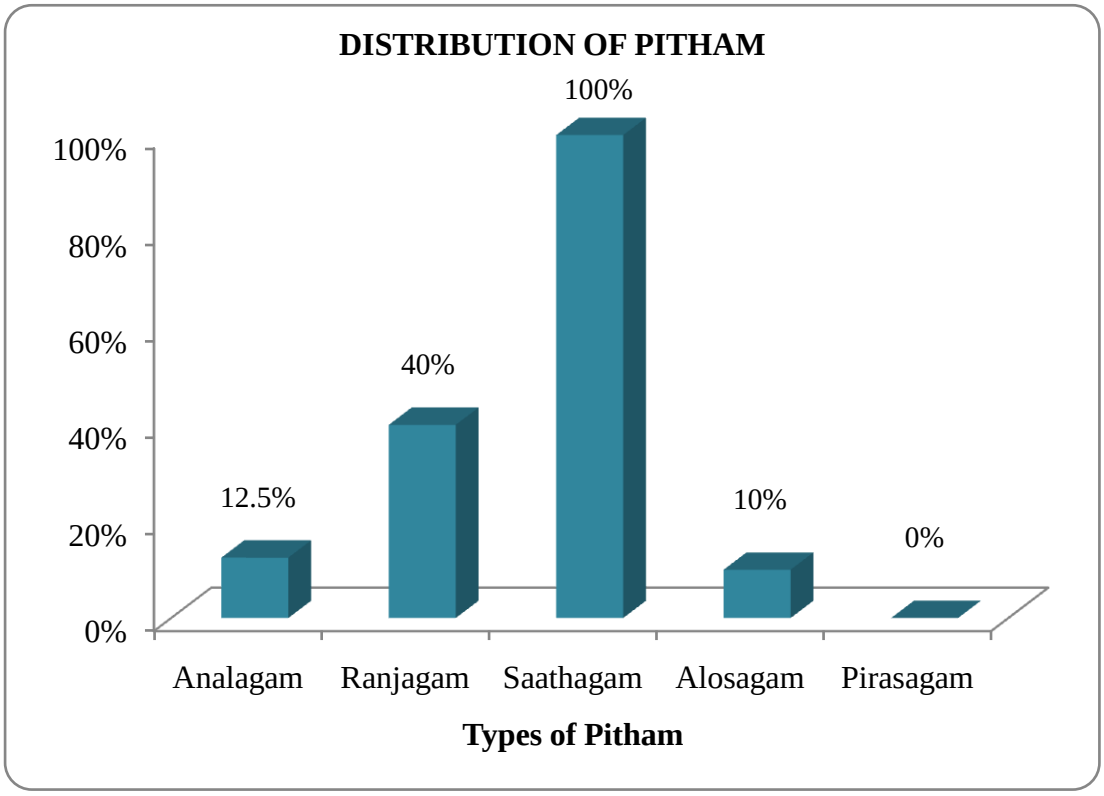


Inference:

Among 40 patients, Pranan was affected in all 40 patients (100%), Abanan was affected in 8 patients (20%), Viyanan was affected in all 40 patients (100%), Uthanan was affected in 9 patients (22.5%), Samanan was affected in 5 patients (12.5%), Koorman was affected in 4 patients (10%) and Devathathan was affected in 4 patients (10%), Kirukaran was affected in all 40 patients (100%).

10. DISTRIBUTION OF MUKKUTRAM - PITHAM

S. No	PITHAM	NUMBER OF CASES	PERCENTAGE (%)
1	Analagam	5	12.5 %
2	Ranjagam	16	40 %
3	Saathagam	40	100 %
4	Alosagam	4	10 %
5	Pirasagam	0	0 %

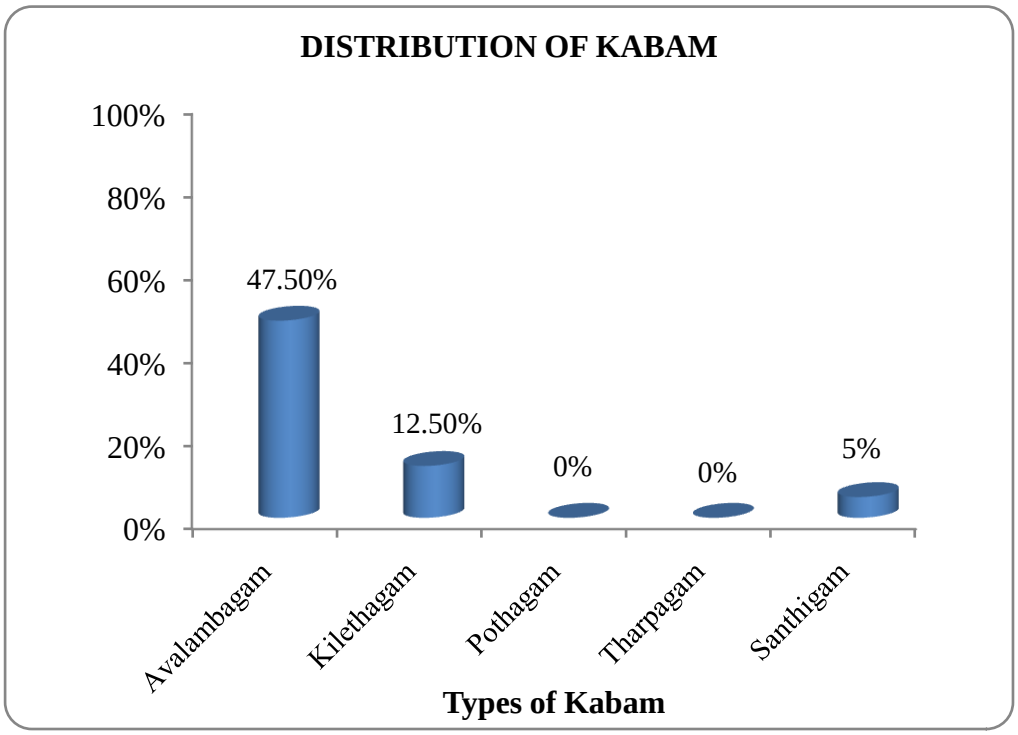


Inference:

Among 40 patients, Analaga Pitham was affected in 5 patients (12.5 %), Ranjagam was affected in 16 patients (40 %), Saathagam was affected in all 40 patients (100 %) and Alosagam was affected in 4 patients (10 %).

11. DISTRIBUTION OF MUKKUTRAM – KABAM

S. No	KABAM	NUMBER OF CASES	PERCENTAGE (%)
1	Avalambagam	19	47.5 %
2	Kilethagam	5	12.5 %
3	Pothagam	0	0 %
4	Tharpagam	0	0 %
5	Santhigam	2	5 %

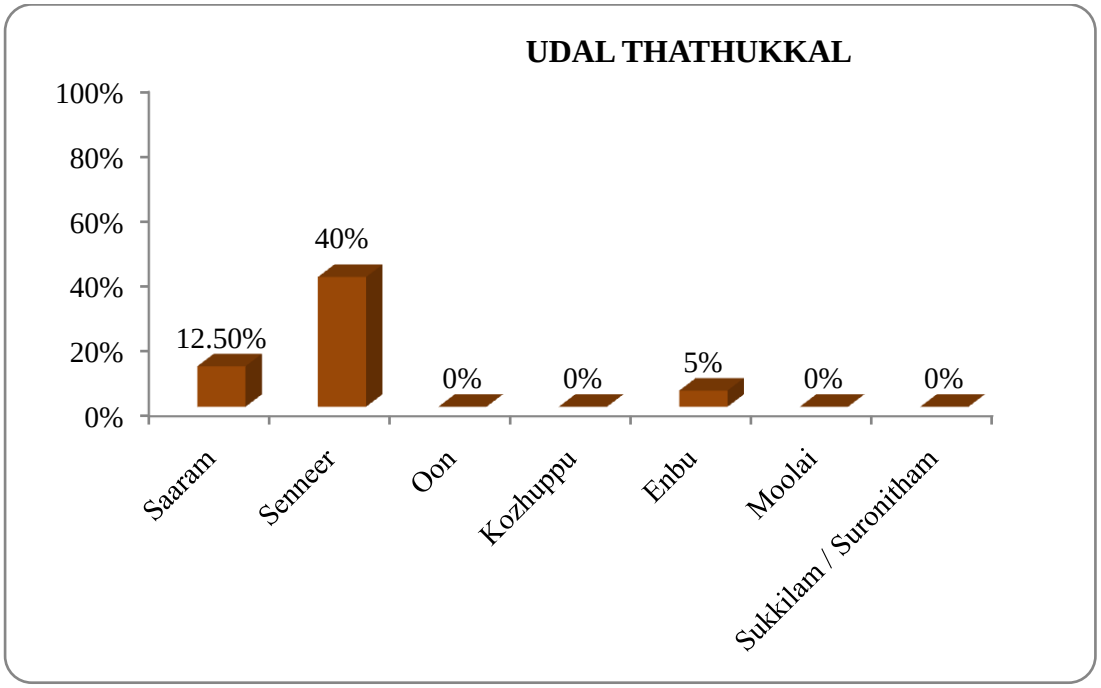


Inference:

Among 40 patients, Avalambagam was affected in 19 patients (47.5 %), Kilethagam was affected in 5 patients (12.5 %) and Santhigam was affected in 2 patients (5 %).

12. UDAL THATHUKKAL

S. No	EZHU UDAL THATHUKKAL	NUMBER OF CASES	PERCENTAGE (%)
1	Saaram	5	12.5 %
2	Senneer	16	40 %
3	Oon	0	0 %
4	Kozhuppu	0	0 %
5	Enbu	2	5 %
6	Moolai	0	0 %
7	Sukkilam / Suronitham	0	0 %

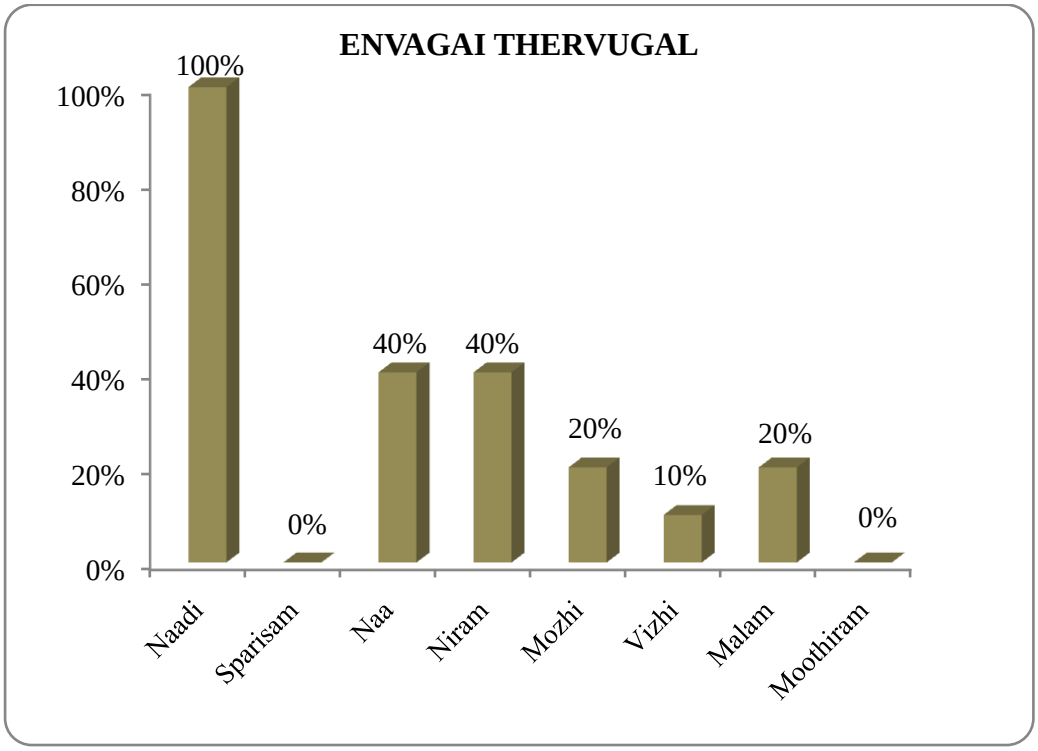


Inference:

Among 40 patients, Saaram was affected in 5 patients (12.5 %), Senneer was affected in 16 patients (40 %) and Enbu was affected in 2 patients (5 %).

13. ENVAGAI THERVUGAL

S. No	EN VAGAI THERVUGAL	NUMBER OF CASES	PERCENTAGE (%)
1	Naadi	40	100%
2	Sparisam	0	0%
3	Naa	16	40%
4	Niram	16	40%
5	Mozhi	8	20%
6	Vizhi	4	10%
7	Malam	8	20%
8	Moothiram	0	0%

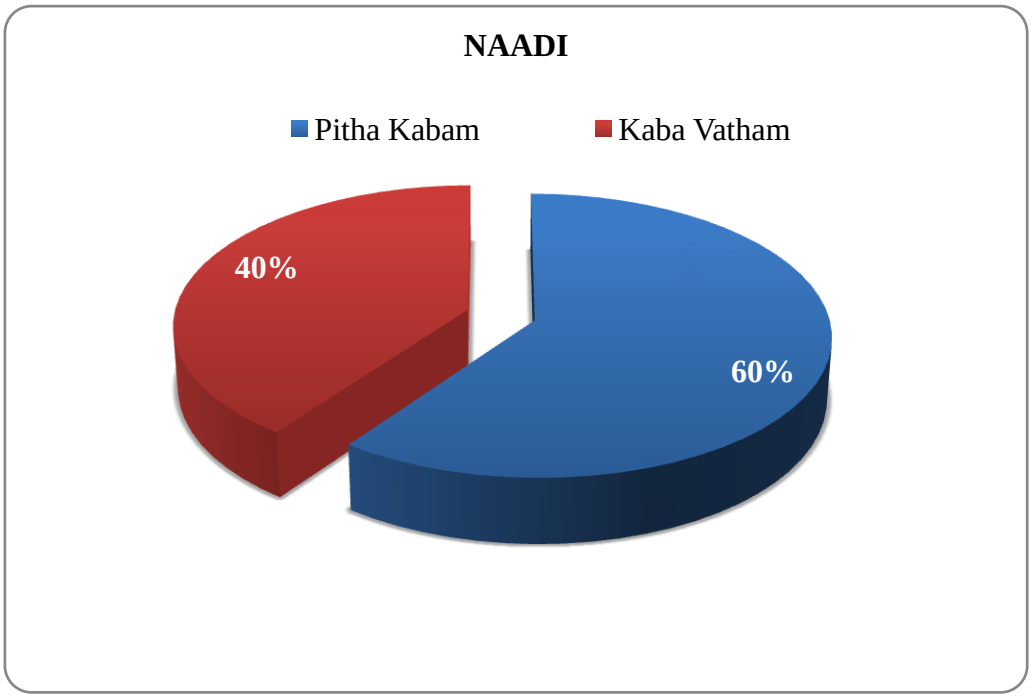


Inference:

Among 40 patients, Naadi was affected in all 40 patients (100 %), Naa was affected in 16 patients (40 %), Niram was affected in 16 patients (40 %), Mozhi was affected in 8 patients (20 %), Vizhi was affected in 4 patients (10 %) and Malam was affected in 8 patients (20 %).

14. NAADI

S. No	NAADI	NUMBER OF CASES	PERCENTAGE (%)
1	Pitha Kabam	24	60%
2	Kaba Vatham	16	40%

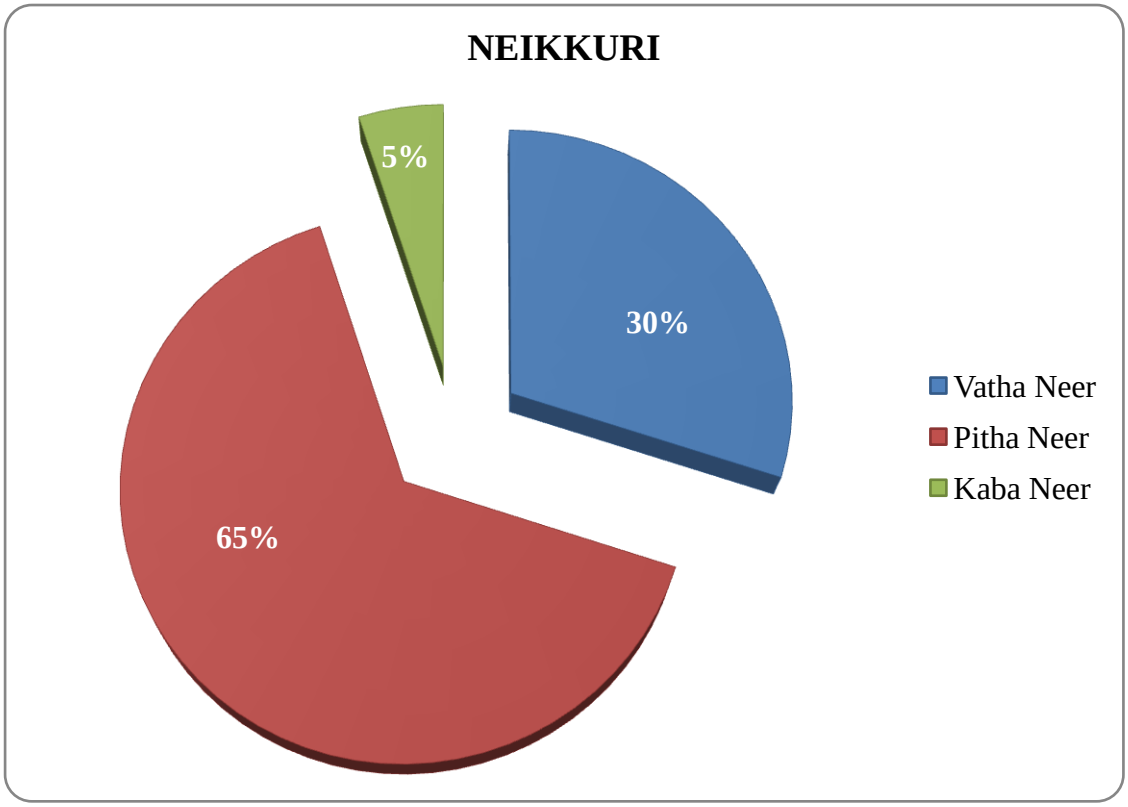


Inference:

Among the 40 patients, 24 patients (60 %) had Pitha Kaba Naadi and 16 patients (40 %) had Kaba Vatha Naadi.

15. NEIKKURI

S. No	THAATHU	NEIKURI	NUMBER OF CASES	PERCENTAGE (%)
1	Vatha Neer	Spread like snake	12	30%
2	Pitha Neer	Spread like ring	26	65%
3	Kaba Neer	Spread like pearl	2	5%

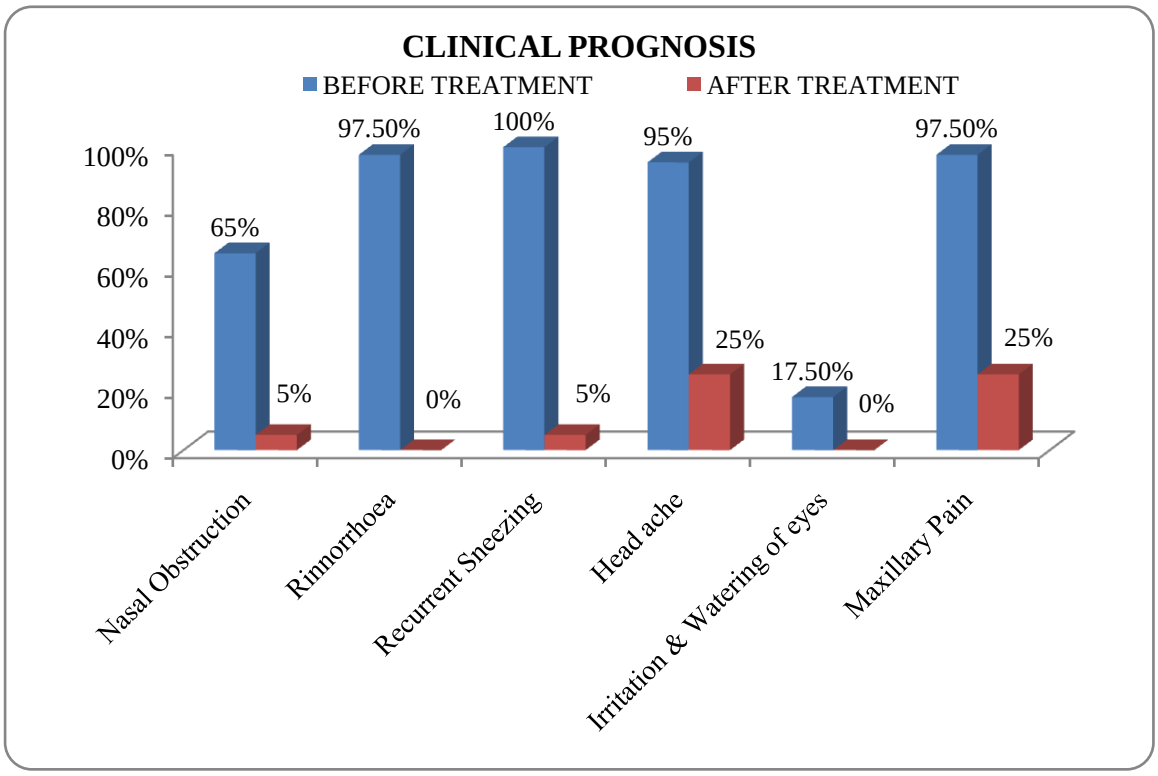


Inference:

Among the urine samples of 40 patients, 26 samples (65 %) showed Pitha Neer, 12 samples (30 %) showed Vatha Neer and 4 samples (5 %) showed Kaba Neer.

16. CLINICAL PROGNOSIS

CLINICAL FEATURES	BEFORE TREATMENT		AFTER TREATMENT	
	NUMBER OF CASES	PERCENTAGE %	NUMBER OF CASES	PERCENTAGE %
Nasal Obstruction	26	65%	2	5%
Rinnorrhoea	39	97.50%	0	0%
Recurrent Sneezing	40	100%	2	5%
Head ache	38	95%	10	25%
Irritation & Watering of eyes	7	17.50%	0	0%
Maxillary Pain	39	97.50%	10	25%



Inference:

100% of patients were relieved from Rinnorrhoea and Irritation & watering of eyes. 60% of patients were relieved from Nasal obstruction. 95% of patients were relieved from recurrent sneezing. 70% of patients were relieved from Headache. 72.5% of patients were relieved from Maxillary pain.

CLINICAL PROGNOSIS – SINUSITIS SEVERITY SCORE (SSS)

S. No	OP No	BT	AT	DIFFERENCE	PROGNOSIS
1	3798	20	2	18	Good
2	353	16	0	16	Good
3	1618	20	0	20	Good
4	4311	15	0	15	Good
5	1360	19	13	6	Mild
6	4584	16	8	8	Moderate
7	1871	16	0	16	Good
8	8346	11	8	3	No Improvement
9	8116	20	0	20	Good
10	7135	22	0	22	Good
11	218	19	0	19	Good
12	865	20	0	20	Good
13	5849	11	8	3	No Improvement
14	2570	22	0	22	Good
15	1311	16	0	16	Good
16	5306	19	0	19	Good
17	5896	20	0	20	Good
18	6843	20	0	20	Good
19	6943	20	0	20	Good
20	8606	16	0	16	Good
21	8919	18	8	10	Moderate
22	412	19	0	19	Good
23	2917	20	0	20	Good

24	1447	20	0	20	Good
25	9168	18	8	10	Moderate
26	2734	18	0	18	Good
27	3155	16	0	16	Good
28	1559	17	0	17	Good
29	5996	13	8	5	Mild
30	5995	15	0	15	Good
31	6312	15	0	15	Good
32	6672	7	4	3	No Improvement
33	7321	18	0	18	Good
34	7096	16	8	8	Moderate
35	2024	15	0	15	Good
36	5651	19	0	19	Good
37	1398	18	8	10	Moderate
38	8296	21	0	21	Good
39	817	20	0	20	Good
40	7983	19	0	19	Good

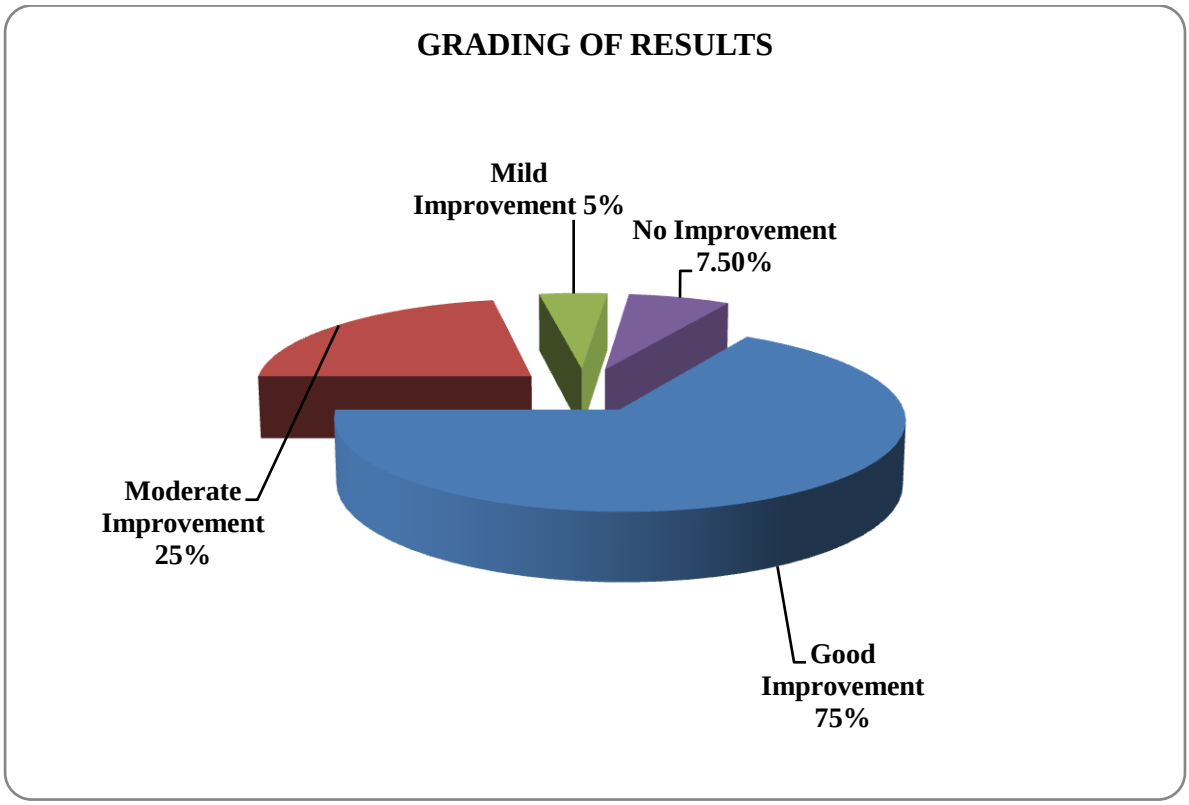
Note: Improvement is assessed based on the difference in SSS score

0-3 : No improvement 4-7 : Mild improvement

8-11 : Moderate improvement 12-24 : Good improvement

17. GRADING OF RESULTS

S. No	GRADING OF RESULTS	NUMBER OF CASES	PERCENTAGE (%)
1	Good Improvement	30	75%
2	Moderate Improvement	5	25%
3	Mild Improvement	2	5%
4	No Improvement	3	7.50%



Inference:

Among 40 patients, 30 patients (75 %) showed Good improvement, 5 patients (25 %) showed Moderate improvement, 2 patients (5 %) showed Mild improvement and 3 patients (7.5 %) showed No improvement.

LIST OF PATIENTS

S. No	OP No	Age / Sex	Occupation	Date of Medicine Started
1	3798	35 / F	House Wife	03-01-2018
2	353	28 / F	Office Worker	04-01-2018
3	1618	24 / F	Student	06-01-2018
4	4311	40 / F	House Wife	08-01-2018
5	1360	42 / M	Driver	10-01-2018
6	4584	39 / M	Office Worker	12-01-2018
7	1871	50 / M	Coolie	13-01-2018
8	8346	32 / M	Office Worker	15-01-2018
9	8116	22 / M	Student	18-01-2018
10	7135	40 / F	House Wife	20-01-2018
11	218	26 / F	Student	23-01-2018
12	865	30 / F	Office Worker	25-01-2018
13	5849	48 / M	Driver	27-01-2018
14	2570	40 / M	Driver	29-01-2018
15	1311	47 / M	Welder	30-01-2018
16	5306	32 / F	House Wife	02-02-2018
17	5896	28 / F	Office Worker	05-02-2018
18	6843	27 / M	Student	07-02-2018
19	6943	28 / F	IT Worker	10-02-2018
20	8606	40 / M	Coolie	13-02-2018
21	8919	28 / M	IT Worker	14-02-2018
22	412	29 / F	Office Worker	19-02-2018
23	2917	28 / F	IT Worker	20-02-2018
24	1447	20 / M	Student	21-02-2018
25	9168	27 / F	House Wife	23-02-2018
26	2734	30 / F	House Wife	26-02-2018
27	3155	39 / F	Coolie	28-02-2018
28	1559	39 / F	House Wife	04-03-2018
29	5996	25 / F	Student	07-03-2018
30	5995	36 / M	Driver	07-03-2018
31	6312	48 / F	House Wife	08-03-2018
32	6672	54 / M	Coolie	09-03-2018
33	7321	26 / F	House Wife	12-03-2018
34	7096	37 / M	Driver	14-03-2018
35	2024	37 / F	House Wife	16-03-2018
36	5651	36 / M	Police	18-03-2018
37	1398	39 / F	House Wife	21-03-2018
38	8296	29 / F	Office Worker	25-03-2018
39	817	48 / F	House Wife	27-03-2018
40	7983	45 / F	House Wife	30-03-2018

LABORATORY INVESTIGATIONS OF PATIENTS

S. No	OP No	Age / Sex	Before Treatment				After Treatment				ESR (mm)				Hb (gms%)	
			TC (cu/mm)	DC			TC (cu/mm)	DC			BT		AT			
				P%	L%	E%		P%	L%	E%	1/2 hr	1 hr	1/2 hr	1 hr	BT	AT
1	3798	35 / F	9800	55	39	6	9900	59	38	3	22	43	12	24	11	11.5
2	353	28 / F	9800	60	34	6	9850	60	38	2	20	42	15	24	10	11
3	1618	24 / F	9800	54	40	6	9870	57	40	3	24	40	14	28	10.5	10.5
4	4311	40 / F	10400	62	33	5	10400	62	34	4	10	16	12	20	10.5	11
5	1360	42 / M	9800	52	44	4	9970	52	43	5	14	28	7	16	10.5	10.5
6	4584	39 / M	9500	59	36	5	9630	55	40	5	8	19	10	21	13.5	13.5
7	1871	50 / M	9200	56	38	6	9300	62	35	3	20	38	8	16	10	11
8	8346	32 / M	8400	56	36	8	8600	58	40	2	7	18	14	26	12.5	13
9	8116	22 / M	9650	60	34	6	9700	63	34	3	11	20	11	25	12	13.5
10	7135	40 / F	9800	54	40	6	9800	58	40	3	8	19	19	30	13.5	13
11	218	26 / F	9500	56	35	9	9500	61	37	2	20	40	12	18	10	13.5
12	865	30 / F	9400	56	35	9	9400	59	39	2	15	24	9	15	11	10
13	5849	48 / M	9200	58	36	6	9300	63	33	4	40	66	6	13	11.5	11.5
14	2570	40 / M	9800	62	30	8	9900	58	40	2	11	20	4	10	9.5	12
15	1311	47 / M	9800	62	33	5	9800	60	37	3	15	29	3	10	11.5	11
16	5306	32 / F	8400	57	35	8	9900	57	40	3	8	18	4	9	11	12
17	5896	28 / F	9600	62	34	4	9700	61	36	3	4	8	6	14	7.7	10
18	6843	27 / M	9100	53	43	4	9500	62	36	2	14	29	2	6	12	12.5
19	6943	28 / F	9540	62	30	8	9700	58	38	4	14	26	2	5	12.5	13

20	8606	40 / M	8400	63	32	5	8800	60	38	2	8	16	4	7	12.7	13
21	8919	28 / M	10200	60	34	6	10200	60	37	3	11	20	6	12	11	11
22	412	29 / F	9800	57	35	8	9900	60	38	2	15	28	4	7	12.5	12.5
23	2917	28 / F	13600	60	34	6	13700	59	38	3	4	8	3	6	14	11
24	1447	20 / M	8400	52	42	6	8600	58	39	3	10	21	5	8	9.5	15
25	9168	27 / F	8200	56	38	6	8400	63	35	2	15	28	1	2	12	11
26	2734	30 / F	8700	51	42	7	8900	60	36	4	7	15	5	9	10.6	12
27	3155	39 / F	9500	59	35	6	9900	60	38	2	12	20	4	7	11.5	12
28	1559	39 / F	8700	53	40	7	8800	62	36	2	10	18	3	6	11	13
29	5996	25 / F	10000	63	31	6	10100	58	39	3	22	43	4	9	11	12
30	5995	36 / M	8800	52	40	8	8900	59	36	5	10	22	1	2	8.5	10
31	6312	48 / F	9200	54	40	6	9500	60	38	2	20	38	3	5	10	11
32	6672	54 / M	9800	60	33	7	9900	59	37	4	14	29	4	7	10	10
33	7321	26 / F	10800	71	23	6	10000	60	38	2	20	38	3	5	12.9	13
34	7096	37 / M	10000	63	31	6	10100	60	38	2	12	25	4	6	10.5	11
35	2024	37 / F	10000	62	30	8	10200	61	36	3	11	20	3	7	13.5	13
36	5651	36 / M	9800	56	34	10	9900	62	36	2	21	42	4	6	10	11
37	1398	39 / F	9200	58	36	6	9500	60	37	3	12	20	4	9	11.5	12
38	8296	29 / F	10200	60	34	6	10100	60	36	4	18	36	3	6	10	10
39	817	48 / F	9200	63	30	7	9300	58	38	4	12	20	4	9	12	12
40	7983	45 / F	8900	60	38	2	9100	59	37	4	6	12	5	7	11	11

S. No	OP No	Age / Sex	Biochemical Analysis - BT			Biochemical Analysis - AT			Urine Analysis - BT			Urine Analysis - AT		
			Sugar mg	Cho mg	Urea mg	Sugar mg	Cho mg	Urea mg	Alb	Sugar	Dep	Alb	Sug	Dep
1	3798	35 / F	115	186	23	120	190	23	Nil	Nil	Nil	Nil	Nil	Nil
2	353	28 / F	84	159	22	80	175	21	Nil	Nil	FEC	Nil	Nil	Nil
3	1618	24 / F	125	181	20	117	170	20	Nil	Nil	FEC	Nil	Nil	FEC
4	4311	40 / F	110	160	21	120	163	21	Nil	Nil	FEC	Nil	Nil	FEC
5	1360	42 / M	110	163	22	101	165	20	Nil	Nil	Nil	Nil	Nil	Nil
6	4584	39 / M	130	174	20	86	170	20	Nil	Nil	Nil	Nil	Nil	Nil
7	1871	50 / M	105	172	25	100	185	21	Nil	Nil	FEC	Nil	Nil	Nil
8	8346	32 / M	80	220	24	90	176	22	Nil	Nil	OEC	Nil	Nil	Nil
9	8116	22 / M	120	188	22	94	113	23	Nil	Nil	FEC	Nil	Nil	FEC
10	7135	40 / F	102	173	29	130	160	21	Nil	Nil	FEC	Nil	Nil	Nil
11	218	26 / F	130	184	25	120	180	22	Nil	Nil	Nil	Nil	Nil	Nil
12	865	30 / F	90	190	21	100	170	20	Nil	Nil	Nil	Nil	Nil	Nil
13	5849	48 / M	109	210	22	120	180	21	Nil	Nil	OEC	Nil	Nil	Nil
14	2570	40 / M	120	221	22	80	168	23	Nil	Nil	FEC	Nil	Nil	FEC
15	1311	47 / M	100	163	22	130	180	20	Nil	Nil	Nil	Nil	Nil	Nil
16	5306	32 / F	105	130	24	120	175	21	Nil	Nil	Nil	Nil	Nil	Nil
17	5896	28 / F	73	180	20	117	165	22	Nil	Nil	OEC	Nil	Nil	Nil
18	6843	27 / M	113	187	23	120	210	23	Nil	Nil	Nil	Nil	Nil	Nil
19	6943	28 / F	130	212	23	134	172	21	Nil	Nil	Nil	Nil	Nil	Nil
20	8606	40 / M	75	210	23	110	163	22	Nil	Nil	Nil	Nil	Nil	Nil
21	8919	28 / M	88	172	24	100	168	20	Nil	Nil	Nil	Nil	Nil	Nil
22	412	29 / F	110	160	23	108	136	21	Nil	Nil	FEC	Nil	Nil	Nil

23	2917	28 / F	81	180	25	98	158	23	Nil	Nil	Nil	Nil	Nil	Nil
24	1447	20 / M	88	170	25	135	170	20	Nil	Nil	Nil	Nil	Nil	Nil
25	9168	27 / F	98	210	24	100	156	21	Nil	Nil	Nil	Nil	Nil	Nil
26	2734	30 / F	70	218	23	88	170	23	Nil	Nil	Nil	Nil	Nil	Nil
27	3155	39 / F	132	176	28	95	155	22	Nil	Nil	FEC	Nil	Nil	FEC
28	1559	39 / F	88	182	18	88	172	21	Nil	Nil	FEC	Nil	Nil	FEC
29	5996	25 / F	100	156	18	110	160	24	Nil	Nil	FEC	Nil	Nil	Nil
30	5995	36 / M	100	170	17	115	156	23	Nil	Nil	Nil	Nil	Nil	Nil
31	6312	48 / F	98	158	18	106	159	20	Nil	Nil	Nil	Nil	Nil	Nil
32	6672	54 / M	108	136	21	84	177	21	Nil	Nil	Nil	Nil	Nil	Nil
33	7321	26 / F	238	184	25	88	182	20	Nil	Nil	FEC	Nil	Nil	Nil
34	7096	37 / M	110	168	21	100	183	23	Nil	Nil	FEC	Nil	Nil	Nil
35	2024	37 / F	135	185	27	108	163	20	Nil	Nil	Nil	Nil	Nil	Nil
36	5651	36 / M	100	158	23	98	158	19	Nil	Nil	FEC	Nil	Nil	FEC
37	1398	39 / F	109	210	23	113	187	21	Nil	Nil	Nil	Nil	Nil	Nil
38	8296	29 / F	130	176	27	110	160	23	Nil	Nil	Nil	Nil	Nil	Nil
39	817	48 / F	115	172	25	115	156	24	Nil	Nil	Nil	Nil	Nil	Nil
40	7983	45 / F	105	182	21	84	177	23	Nil	Nil	Nil	Nil	Nil	Nil

BT – Before Treatment, AT – After Treatment, TC – Total Blood Count, DC – Differential Blood Count, P – Polymorphs, L – Leucocytes, E – Eosinophils

ESR – Erythrocytes Sedimentation Rate, mm – Milli meter, Hb – Hemoglobin, Cho – Cholesterol, Alb – Albumin, Sug – Sugar, Dep – Deposits, FEC – Few Epithelial Cells, OEC – Occasional Epithelial Cells

DISCUSSION

DISCUSSION

AZHAL THALAINOKKADU is a clinical entity described by Yugi munivar in his Yugi Vaidhiya Chinthamani 800. The classical symptoms are Nasal congestion, Rinnorrhoea, Recurrent sneezing, Head ache, Irritation and watering of eyes and Maxillary pain. These features can be well compared with Sinusitis.

40 patients are selected in the Department of Pothu Maruthuvam, Government Siddha medical college, attached to Arignar Anna Hospital, Arumbakkam, Chennai-106.

The trial medicine **SANGU CHUNNAM** – 130 mg, twice a day with Ghee for 48 days was given. All necessary investigations were carried out to all patients and trial medicine was given. The results of before and after treatment of all patients were analyzed and discussed below.

IEC AND CTRI APPROVAL

The study was approved by Institutional Ethical Committee (IEC) and the approval number is **GSMC-CH-ME-5/006/2016**. It was also approved by Clinical Trials Registry of India (CTRI) and the CTRI registration number is **CTRI/2018/03/012379**.

DRUG AUTHENTICATION

Drug 1 – Paalsangu was authenticated by Head of the Department, Post Graduate Department of Gunapadam, Govt Siddha Medical College, Arumbakkam, Chennai 106.

Drug 2 – Lemon was authenticated by Siddha Central Research Institute, Anna Govt. Hospital Campus, Arumbakkam, Chennai – 106.

IAEC APPROVAL

The trial medicine got IAEC approval for Toxicological and Pharmacological Studies at C.L. BAID METHA COLEGE OF PHARMACY (An ISO 9001-2000 Certified Institute), Jyothi Nagar, OMR, Thoraipakkam, Chennai 97 and IAEC No: **LI/04/CLBMCP/2017**.

TOXICOLOGICAL STUDY

Acute oral toxicity study followed as per OECD 423 guidelines revealed no toxicity in the trial medicine. There is no change between control and test group of animals in Serological and Hematological parameters. In Histopathological study no abnormalities were found in cells. This shows that the medicine is safe.

PHARMACOLOGICAL STUDY

Anti inflammatory activity of Sangu Chunnam is screened against Carageenan Induced Paw Oedema method in Wistar Albino rats. Analgesic activity of Sangu Chunnam is screened by using Eddy`s Hot Plate method in Wistar Albino rats. Both the studies show that the medicine has good anti inflammatory and analgesic activity.

PHYSICO CHEMICAL ANALYSIS

Loss on drying	:	Less than 1%
Total ash value	:	94.36%
Water soluble ash	:	1.27%
Acid soluble ash	:	88.31%
Water soluble extraction	:	3.52%
Alcohol soluble extraction	:	Less than 1%

BIOCHEMICAL ANALYSIS

SANGU CHUNNAM contains:

Acid Radicals **:** Sulphate

Basic Radicals **:** Iron and Calcium

CLINICAL STUDY

AGE DISTRIBUTION

Among 40 patients, 15 patients (37.5%) were in age group of 20-30 years, 13 patients (32.5%) were in age group of 31-40 years, 10 patients (25%) were in age group of 41-50 years, 2 patients (5%) were in age group of 51-60 years.

Hence in sinusitis age did not play a major role. High incidences of cases were noted in the age group of 20-30 years, during the study.

GENDER DISTRIBUTION

Among 40 patients, 16 patients (40%) were males and 24 patients (60%) were females.

OCCUPATION

Among 40 patients, 7 patients (17.5%) were Office Workers, 3 patients (7.5%) were IT Field workers, 13 patients (32.5%) were House Wives, 5 patients (12.5%) were Drivers, 6 patients (15%) were Students, 4 patients (10%) were Coolie, 1 patient (2.5%) was Welder and 1 patient (2.5%) was Police. Hence Sinusitis usually occurs among House Wives who are constantly exposed to dust.

SOCIO ECONOMIC STATUS

Among 40 patients, 29 patients (72.5%) were from low economic status, 8 patients (20%) were from moderate economic status and 3 patients (7.5%) were from high income status. Hence people living in poor socio economic status were more affected because of poor nutrition and unhygienic environment which facilitates the infections and allergic reactions.

DURATION OF ILLNESS

Among 40 patients, 26 patients (65%) were in chronic state of the disease and 14 patients (35%) were in acute state of the disease.

DIETARY HABITS

Among 40 patients, 7 patients (17.5%) were taking vegetarian food and 33 patients (82.5%) were taking mixed diet.

SEASONAL OCCURENCE

Among 40 patients, 20 patients (50%) were noted in Munpani Kaalam and 20 patients (50%) were noted in Pinpani Kaalam.

DISTRIBUTION OF THINAI

Among 40 patients, 92.5% patients were from Neithal nilam. According to Siddhars, Neithal Nilam is prone to Vatha pitha diseases and Azhal Thalainokkadu comes under this classification. As per the study 92.5% of persons came from Neithal nilam (coastal area) i.e. Chennai based area.

7.5% patients were from Marutha nilam. Though Marutha nilam is the land free from disease, the exploitation of land for industrial purpose predisposes environmental pollution leading to occurrence of the disease occasionally.

OBSERVATION OF ALTERED MUKKUTRAM

VATHAM

Pranan, Viyanan and Kirukaran were affected in all patients.

Pranan was affected due to nasal obstruction. Viyanan was affected due to headache, heaviness of head, pain and tenderness in the paranasal sinus region. Kirukaran was affected due to recurrent sneezing, rhinorrhoea and excessive salivation.

22.5% Uthanan was affected due to cough and voice changes.

10% Koorman was affected due to irritation and watering of eyes.

12.5 % Samanan was affected due to loss of appetite.

10% Devathathan was affected due to loss of sleep.

20% Abanan was affected due to constipation.

PITHAM

Saathagam was affected in all patients causing unable to do day today activities.

Ranjagam was affected in 40% patients causing anemia.

Analaga Pitham affected among 12.5% patients and Alosagam affected among 10% patients causing loss of appetite and diminished vision (irritation and watering of eyes) respectively.

KABAM

About 47.5% patients, Avalambagam was affected.

12.5% Kilethagam was affected causing loss of appetite.

5% Santhigam was affected due to age degeneration.

EZHU UDAL THATHUKKAL

In 12.5% patients, Saaram was affected causing tiredness.

40% Seneer was affected causing ESR, Eosinophil count raised and Hb reduced

5% Enbu was affected due to age degeneration.

ENVAGAI THERVUGAL

In all patients (100%) Naadi was affected. 60% had Pitha Kabam and 40% had Kaba Vatha Naadi.

Naa and Niram – 40% patients had anemia

Mozhi – 20% patients had hoarseness of voice.

Vizhi – 10% patients had irritation and watering of eyes.

Malam – 20% patients had hard stools.

NEIKKURI

Among the urine samples of 40 patients, 26 samples (65%) showed Pitha Neer, 12 samples (30%) showed Vatha Neer and 4 samples (5%) showed Kaba Neer.

INVESTIGATIONS

Investigations like TC, DC, ESR, Hb, Blood Sugar, Seerum Cholesterol, Blood Urea, were examined and Urine analysis for Albumin, Sugar, deposits were also examined.

In blood, 9 Patients (22.5%) ESR and10 Patients (25%) Eosinophil count was increased indicating the allergic aetiology.

CLINICAL PROGNOSIS

100% of patients were relieved from Rinnorrhoea and Irritation & watering of eyes. 60% of patients were relieved from Nasal obstruction. 95% of patients were relieved from recurrent sneezing. 70% of patients were relieved from Headache. 72.5% of patients were relieved from Maxillary pain.

IMPROVEMENT

Clinical symptoms before and after treatment were noted. All patients were given score based on Sinusitis Severity Score (SSS). The difference between the SSS score before and after treatment is taken as improvement.

GRADING OF RESULTS

Among 40 patients, 30 patients (75%) showed Good improvement, 5 patients (25%) showed Moderate improvement, 2 patients (5 %) showed Mild improvement and 3 patients (7.5%) showed No improvement.

BIO STATISTICAL ANALYSIS

Since the P value was significant (<0.0001), the null hypothesis is not accepted. So the treatment was extremely significant improving the Sinusitis Severity Score (SSS) score among the patients for the treatment of Azhal Thalainokkadu.

SUMMARY

SUMMARY

The clinical study on **AZHAL THALAINOKKADU** was carried out in Post graduate Department of Maruthuvam, Government Siddha Medical College, Arignar Anna Hospital, Chennai-106 during the period of 2016-2018.

A total of 40 patients were treated in the Outpatient department. The clinical and pathological assessment was carried out on the basis of Siddha and Modern aspects.

All the patients were treated with **SANGU CHUNNAM,** 130 mg twice a day with ghee for duration of 48 days.

- The Toxicological studies of the trial medicine reveal no toxicity.
- The pharmacological studies reveal that, the trial medicine has good anti inflammatory and analgesic activity in rat models.
- Most of the patients were in the age group between 20-30 years (37.5%).
- Most of the patients affected were females (60%).
- Most of the patients were House Wives (32.5%) and Office Workers (17.5%).
- The study reveals 72.5% patients were from low economic status.
- 65 % patients were in chronic state of the disease.
- High incidence of cases noted in Munipani and Pinpani Kaalam (50% respectively).
- The incidence of disease occur more in Neithal niilam (92.5%).
- In Vatham, Pranan, Viyanan and Kirukaran were affected in all patients.
- In Pitham, Saathagam and Ranjagam were affected in 100% and 40% of the patients respectively.
- In Kabam, Avalambagam was affected in 47.5% patients.
- In Ezhu Udal Thathukkal, Seneer affected in 40% patients, Saaram affected in 12.5% patients and Enbu afftected in 5% patients.
- In Envagai Thervugal, Naadi (100%), Mozhi and Malam (20%) and Vizhi (10%) were affected.
- Pitha Kaba Naadi (60 %) was commonly observed in patients.

- 75% of the patients showed Good improvement, 25% patients showed Moderate improvement, 5% patients showed Mild improvement and 7.5% patients showed No improvement.,
- Bio statistical analysis of the clinical trial reveals significant p value < 0.0001 and concluded that the treatment is effective and significant.

CONCLUSION

CONCLUSION

- Azhal Thalainokkadu is primarily due to derangement of Vatha Kutram.
- The trial medicine Sangu Chunnam predominating with Innipu suvai, it neutralizes the deranged vatham by Ethirurai Maruthuvam.
- Sangu Chunnam reveals no toxicity in animal models and hence proved to be safe in human subjects.
- From Pharmacological studies, the trial medicine had significant Anti Inflammatory and Analgesic activity.
- No adverse effect was reported during the clinical study.
- Sangu Chunnam significantly gave good relief from the symptoms of Azhal Thalainokkadu.
- Sangu Chunnam is less cost effective.

Hence I conclude that **SANGU CHUNNAM** be a better choice for the management of **AZHAL THALAINOKKADU.**

ANNEXURES

The Tamil Nadu Dr.M.G.R.Medical University

69, Anna Salai, Guindy, Chennai - 600 032.

This Certificate is awarded to Dr/Mr/Mrs.....V. INDUMATHY.....

For participating as ~~Resource Person~~ / Delegate in the Twentieth Workshop on

"RESEARCH METHODOLOGY & BIOSTATISTICS"

For ***AYUSH Post Graduates & Researchers***

Organized by the Department of Siddha

The Tamil Nadu Dr. M.G.R. Medical University From 07th to 11th March 2016.

Dr.N.KABILAN, M.D.(S)
PROF & HEAD
DEPT.OF SIDDHA

Prof.**Dr.P.ARUMUGAM,** M.D.,
REGISTRAR i/c

Prof. **Dr.S.GEETHALAKSHMI,** M.D., Ph.D.,
VICE CHANCELLOR

POST GRADUATE DEPARTMENT OF GUNAPADAM
(PHARMACOLOGY)
GOVERNMENT SIDDHA MEDICAL COLLEGE, CHENNAI-106

IDENTIFICATION AND AUTHENTICATION CERTIFICATE

Name of the Student : V. INDUMATHY

Department : DEPARTMENT OF MARUTHUVAM

Batch year : 2015 - 2018

Name of the sample : PAAL SANGU (Turbinella pyrum)

Sample description : **Dried whole plant / metal /mineral** ✓

Date of the receipt :

REPORT

This sample has been critically studied with macroscopic and organoleptic characters along with relevant literature, I declared that this plant/metal/mineral material is correctly identified as _ PAAL SANGU (Turbinella Pyrum) and I hereby authenticate that the sample given by Dr.V.Indumathy.

This certificate issued at his/her request and is given only for dissertation purpose.

Date:

Place: chennai.

Signature with Seal

Head of the Department
Gunapadam
Govt. Siddha Medical College,
CHENNAI-600 106.

सिद्ध केंद्रीय अनुसन्धान संस्थान
(सी.सी.आर.एस., चेन्नई, आयुष मंत्रालय, भारत सरकार)
अण्णा सरकारी अस्पताल परिसर, अरुम्बाक्कम, चेन्नई - 600106
SIDDHA CENTRAL RESEARCH INSTITUTE
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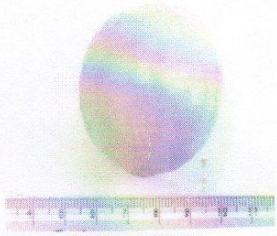
Ministry of AYUSH, Government of India)
Anna Govt. Hospital Campus, Arumbakkam, Chennai - 600106
E-mail: crisiddha@gmail.com Phone: 044-26214925, 26214809

02.06.2017

AUTHENTICATION CERTIFICATE FOR 17051835

Certified that the drug submitted by Dr. V. Indumathy, MD (S) II Year, Dept of Maruthuvam, Govt. Siddha Medical College, Arumbakkam, Chennai-106 is identified as:

SN	Botanical Name	Tamil Name	Part	Code
1.	*Citrus limon* (L.) Osbeck	Elumicham pazham	Fruit	C17051835L



C17051835L

Dr. K.N. Sunil Kumar
Research Officer and HOD
Department of Pharmacognosy

Dr. M. Kannan
Research Officer (Siddha)
and In Charge

C.L. BAID METHA COLLEGE OF PHARMACY

(An ISO 9001-2000 certified institute)

Jyothi Nagar, Old Mahabalipuram Road

Thoraipakkam, Chennai – 600 097

CERTIFICATE

This is to certify that the project entitled, Pharmacological and Toxicological screening of Sangu Chunnam submitted in partial fulfilment for the degree of M.D. (siddha) was carried out at C.L. Baid Metha college of Pharmacy, Chennai-97, in the Department of Pharmacology during the academic year of 2017-2018. It has been approved by the IAEC No: LI/04/CLBMCP/2017

C.L. Baid Metha College of Pharmacy ★ CHENNAI-97 ★ Thoraipakkam

Dr.P. MURALIDHARAN

IAEC MEMBER SECERATARY

ACUTE ORAL TOXICITY STUDY OF SANGU CHUNNAM

(OECD GUIDELINE – 423)

INTRODUCTION

- The acute toxic class method is a stepwise procedure with the use of 3 animals of a single sex per step.
- Depending on the mortality and/or the moribund status of the animals, on average 2-4 steps may be necessary to allow judgement on the acute toxicity of the test substance.
- This procedure is reproducible, uses very few animals and is able to rank substances in a similar manner to the other acute toxicity testing methods.
- The acute toxic class method is based on biometric evaluations with fixed doses, adequately separated to enable a substance to be ranked for classification purposes and hazard assessment.
- In principle, the method is not intended to allow the calculation of a precise LD50, but does allow for the determination of defined exposure ranges where lethality is expected since death of a proportion of the animals is still the major endpoint of this test.
- The method allows for the determination of an LD50 value only when at least two doses result in mortality higher than 0% and lower than 100%.
- The use of a selection of pre-defined doses, regardless of test substance, with classification explicitly tied to number of animals observed in different states improves the opportunity for laboratory to laboratory reporting consistency and repeatability.

PRINCIPLE OF THE TEST

It is the principle of the test that based on a stepwise procedure with the use of a minimum number of animals per step, sufficient information is obtained on the acute toxicity of the test substance to enable its classification. The substance is administered orally to a group of experimental animals at one of the defined doses. The substance is tested using a stepwise procedure, each step using three animals of a single sex.

Absence or presence of compound-related mortality of the animals dosed at one step will determine the next step, i.e.

- No further testing is needed.
- Dosing of three additional animals, with the same dose.
- Dosing of three additional animals at the next higher or the next lower dose level.

The method will enable a judgment with respect to classifying the test substance to one of a series of toxicity classes.

METHODOLOGY

SELECTION OF ANIMAL SPECIES

The preferred rodent species is the Wistar Albino rat, although other rodent species may be used. Healthy young adult animals are commonly used laboratory strains should be employed. Females should be nulliparous and non-pregnant. Each animal, at the commencement of its dosing, should be between 6 to 8 weeks old and the weight (150-200gm) should fall in an interval within ± 20 % of the mean weight of any previously dosed animals.

HOUSING AND FEEDING CONDITIONS

The temperature in the experimental animal room should be 22ºC $\pm$ 3ºC. Although the relative humidity should be at least 30% and preferably not exceed 70% other than during room cleaning the aim should be 50-60%. Lighting should be artificial, the sequence being 12 hours light, 12 hours dark. For feeding, conventional laboratory diets may be used with an unlimited supply of drinking water. Animals may be group-caged by dose, but the number of animals per cage must not interfere with clear observations of each animal.

PREPARATION OF ANIMALS

The animals are randomly selected, marked to permit individual identification, and kept in their cages for at least 7 days prior to dosing to allow for acclimatization to the laboratory conditions

TEST ANIMALS AND TEST CONDITIONS

Sexually mature Female Wistar Albino rats (150-200gm) were obtained from Kings Institute, Guindy, Chennai. All the animals were kept under standard environmental condition (22±3°C). The animals had free access to water and standard pellet diet (Sai meera foods, Bangalore).

PREPARATION FOR ACUTE TOXICITY STUDIES

Rats were deprived of food overnight (but not water 16-18 hr) prior to administration of the, **SANGU CHUNNAM**.

The principles of laboratory animal care were followed and the Institutional Animal Ethical Committee approved the use of the animals and the study design

IAEC No	: LI/04/CLBMCP/2017
Test Substance	: **SANGU CHUNNAM**
Animal Source	: Kings institute, Guindy, Chennai.
Animals	: Wister Albino Rats (Female-3+3)
Age	: 6-8 weeks
Body Weight on Day 0	: 150-200gm.
Acclimatization	: Seven days prior to dosing.
Veterinary examination	: Prior and at the end of the acclimatization period.
Identification of animals	: By cage number, animal number and individual marking by using Picric acid.
Number of animals	: 3 Female/group,
Route of administration	: Oral
Diet	: Pellet feed supplied by Sai meera foods Pvt Ltd, Bangalore
Water	: Aqua guard portable water in polypropylene bottles.

Housing & Environment : The animals were housed in Polypropylene cages provided with bedding of husk.

Housing temperature : Between 22ºC + 3ºC.

Relative humidity : Between 30% and 70%,

Air changes : 10 to 15 per hour

Dark and light cycle : 12**:**12 hours

Duration of the study : 14 Days

ADMINISTRATION OF DOSES

SANGU CHUNNAM was suspended in water and administered to the groups of wistar albino rats in a single oral dose by gavage using a feeding needle. The control group received an equal volume of the vehicle. Animals were fasted 12 hours prior to dosing. Following the period of fasting, the animals were weighed and then the test substance was administered. Three Female animals are used for each group. The dose level of 5, 50, 300 and 2000 mg/kg body weight was administered stepwise. After the substance has been administered, food was withheld for a further 3-4 hours. The principle of laboratory animal care was followed. Observations were made and recorded systematically and continuously as per the guideline after substance administration. The visual observations included skin changes, mobility, aggressively, sensitivity to sound and pain, as well as respiratory movements. Finally, the number of survivors was noted after 24 hrs and these animals were then monitored for a further 14 days and observations made daily. The toxicological effect was assessed on the basis of mortality.

OBSERVATIONS

Animals are observed individually after dosing at least once during the first 30 minutes, periodically during the first 24 hours, with special attention given during the first 4 hours, and daily thereafter, for a total of 14 days, except where they need to be removed from the study and humanely killed for animal welfare reasons or are found dead. It should be determined by the toxic reactions, time of onset and length of recovery period, and may thus be extended when considered necessary. The times at

which signs of toxicity appear and disappear are important, especially if there is a tendency for toxic signs to be delayed. All observations are systematically recorded with individual records being maintained for each animal.

Observations include changes in skin and fur, eyes and mucous membranes, and also respiratory, circulatory, autonomic and central nervous systems, and somatomotor activity and behavior pattern. Attention was directed to observations of tremors, convulsions, salivation, diarrhoea, lethargy, sleep and coma. The principles and criteria summarized in the Humane Endpoints Guidance Document taken into consideration. Animals found in a moribund condition and animals showing severe pain or enduring signs of severe distress was humanly killed. When animals are killed for human reasons or found dead, the time of death was recorded.

ACUTE ORAL TOXICITY STUDY OF SANGU CHUNNAM

Table 1: Dose finding experiment and its behavioral Signs of acute oral Toxicity

OBSERVATION DONE

S. No	GROUP - CONTROL	OBSERVATION	S. No	GROUP - TEST GROUP	OBSERVATION
1	Body weight	Normal	1	Body weight	Normally increased
2	Assessments of posture	Normal	2	Assessments of posture	Normal
3	Signs of Convulsion Limb paralysis	Normal	3	Signs of Convulsion Limb paralysis	Absence of sign (-)
4	Body tone	Normal	4	Body tone	Normal
5	Lacrimation	Normal	5	Lacrimation	Absence
6	Salivation	Normal	6	Salivation	Absence
7	Change in skin color	No significant color change	7	Change in skin color	No significant color change
8	Piloerection	Normal	8	Piloerection	Normal
9	Defecation	Normal	9	Defecation	Normal
10	Sensitivity response	Normal	10	Sensitivity response	Normal
11	Locomotion	Normal	11	Locomotion	Normal
12	Muscle gripness	Normal	12	Muscle gripness	Normal
13	Rearing	Mild	13	Rearing	Mild
14	Urination	Normal	14	Urination	Normal

BEHAVIOUR

The animals will be observed closely for behaviour in the first four hours which includes abnormal gait, aggressiveness, exophthalmos, ptosis, akinesia, catalepsy, convolution, excitation, head twitches, lacrimation, loss of corneal reflex, loss of traction, piloerection reactivity of touch, salivation, scratching, sedation, chewing, head movements, sniffing, straub, tremor and writhes, diarrhea, leathery, sleep and coma.

BODY WEIGHT

Individual weight of animals was determined before the test substance was administered and weights will be recorded at day 1, 7, and 14 of the study. Weight changes were calculated and recorded. At the end of the test, surviving animals were weighed and humanly killed.

FOOD AND WATER CONSUMPTION

Food and water consumed per animal was calculated for control and the treated dose groups.

MORALITY

Animals were observed for mortality throughout the entire period.

RESULTS

All data were summarized in tabular form, (Table-1-4) showing for each test group the number of animals used, the number of animals displaying signs of toxicity, the number of animals found dead during the test, description of toxic symptoms, weight changes, food and water intake.

No of animals in each group: 3

Table 2: (Observational study Results)

S. No	Dose mg/kg	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Control	+	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	2000mg	+	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1 – Alertness, 2 – Aggressiveness, 3 – Pile erection, 4 – Grooming, 5 – Gripping, 6 - Touch Response, 7 - Decreased Motor Activity, 8 – Tremors, 9 – Convulsions, 10 - Muscle Spasm, 11 – Catatonia, 12 - Muscle relaxant, 13 – Hypnosis, 14 – Analgesia, 15 – Lacrimation, 16 - Exophthalmos, 17 – Diarrhea, 18 – Writhing, 19 – Respiration, 20 – Mortality, '+' – Present, '-' – Absent.

Table 3: (Body weight Observation)

DOSE	DAYS		
	1	7	14
CONTROL	280.2 ± 42.30	281.4 ± 64.12	282.6 ±26.18
HIGH DOSE	270.4± 21.24	271 ± 3.64	271.4 ± 2
P value (p)*	NS	NS	NS

Table 4: Water intake (ml/day) of Wistar albino rats group exposed to SANGU CHUNNAM:

DOSE	DAYS		
	1	6	14
CONTROL	61 ± 1.12	62 ± 2.22	63.9 ± 1.14
HIGH DOSE	58.2 ± 1.1	58 ± 1.14	59.2 ± 24
P value (p)*	NS	NS	NS

N.S- Not Significant, ** (p > 0.01), * (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

Table 5: Food intake (gm/day) of Wistar albino rats group exposed to SANGU CHUNNAM:

DOSE	DAYS		
	1	6	14
CONTROL	61 ± 1.12	62 ± 2.22	63.9 ± 1.14
HIGH DOSE	58.2 ± 1.1	58 ± 1.14	59.2 ± 24
P value (p)*	NS	NS	NS

REPEATED DOSE 28-DAY ORAL TOXICITY (407)

STUDY OF SANGU CHUNNAM

Test Substance	: **SANGU CHUNNAM**
Animal Source	: TANUVAS, Madhavaram, Chennai.
Animals	: Wister Albino Rats (Male -24, and Female-24)
Age	: 6-8 weeks
Body Weight	: 150-300gm.
Acclimatization	: Seven days prior to dose.
Veterinary examination	: Prior and at the end of the acclimatization period.
Identification of animals	: By cage number, animal number and individual marking by using Picric acid
Diet	: Pellet feed supplied by Sai meera foods Pvt Ltd, Bangalore
Water	: Aqua guard portable water in polypropylene bottles.
Housing & Environment	: The animals were housed in Polypropylene cages provided with bedding of husk.
Housing temperature	: Between 22ºC $\pm$ 3ºC.
Relative humidity	: Between 30% and 70%,
Air changes	: 10 to 15 per hour
Dark and light cycle	: 12**:**12 hours.
Duration of the study	: 28 Days.

Table 6:

GROUPS	NUMBER OF RATS
Group I Vehicle control (Water)	12(6male,6 female)
Group II low dose X (20mg)	12 (6male,6 female)
Group III Mid dose 5X (100mg)	12 (6male,6female)
Group IV High dose 10X (200 mg)	12(6male,6female)

SANGU CHUNNAM

METHODOLOGY

RANDOMIZATION, NUMBERING AND GROUPING OF ANIMALS

48 Wistar Albino Rats (24M + 24F) were selected and divided into 4 groups. Each group consists of 12 animals (Male -6, and Female-6). First group treated as a control and other three groups were treated with test drug (low, mid, high) for 28 days. Animals were allowed acclimatization period of 7 days to laboratory conditions prior to the initiation of treatment. Each animal was marked with picric acid. The females were nulliparous and non-pregnant.

JUSTIFICATION FOR DOSE SELECTION

As per OECD guideline three dose levels were selected for the study. They are low dose (X), mid dose (5X), high dose (10X). X is calculated by multiplying the acute dose (2000 mg) i.e. X dose is (20mg), 5X dose is 100mg/animal, 10X dose is 200mg/animal.

PREPARATION AND ADMINISTRATION OF DOSE:

SANGU CHUNNAM suspended in with water, It was administered to animals at the dose levels of X, 5X, 10X. The test substance suspensions were freshly prepared every two days once for 28 days. The control animals were administered vehicle only. The drug was administered orally by using oral gavage once daily for 28 consecutive days.

OBSERVATIONS

Experimental animals were kept under observation throughout the course of study for the following:

BODY WEIGHT

Weight of each rat was recorded on day 0, at weekly intervals throughout the course of study.

FOOD AND WATER CONSUMPTION

Food and water consumed per animal was calculated for control and the treated dose groups.

CLINICAL SIGNS

All animals were observed daily for clinical signs. The time of onset, intensity and duration of these symptoms, if any, were recorded.

MORTALITY

All animals were observed twice daily for mortality during entire course of study.

NECROPSY

All the animals were sacrificed by excessive anaesthesia on day 29. Necropsy of all animals was carried out.

LABORATORY INVESTIGATIONS

Following laboratory investigations were carried out on day 29 in animals fasted over-night. Blood samples were collected from orbital sinus using sodium heparin (200IU/ml) for Bio chemistry and potassium EDTA (1.5 mg/ml) for Hematology as anticoagulant. Blood samples were centrifuged at 3000 r.p.m. for 10 minutes.

HAEMATOLOGICAL INVESTIGATIONS

Haematological parameters were determined using Haematology analyzer.

BIOCHEMICAL INVESTIGATIONS

Biochemical parameters were determined using auto-analyzer.

HISTOPATHOLOGY

Control and highest dose group animals will be initially subjected to histopathological investigations. If any abnormality found in the highest dose group than the low, then the mid dose group will also be examined. Organs will be collected from all animals and preserved in 10% buffered neutral formalin for 24 h and washed in running water for 24 h. The organ sliced 5 or 6µm sections and were dehydrated in an auto technicon and then cleared in benzene to remove absolute alcohol. Embedding was done by passing the cleared samples through three cups containing molten paraffin at 50°C and then in a cubical block of paraffin made by the "L" moulds. It was followed by microtome and the slides were stained with Haematoxylin-eosin red.

STATISTICAL ANALYSIS

Findings such as body weight changes, water and food consumption, hematology and blood chemistry were subjected to One-way ANOVA followed by dunnett test using a computer software program – Graph pad version 7. All data were summarized in tabular form, (Table-6 to 12)

RESULTS

Repeated Dose 28 day oral toxic study of **SANGU CHUNNAM**

Table 7: Body weight of Wistar Albino rats group exposed to SANGU CHUNNAM

DOSE	DAYS				
	1	7	14	21	28
CONTROL	290.2±24.22	291.4 ± 14.24	291.5 ± 25.40	292.5± 35.46	292.4 ± 45.15
LOW DOSE	265.2 ± 46.14	265.4 ± 27.20	267.6± 66.74	268 ± 62.18	268.8± 54.34
MID DOSE	270.4± 04.24	270.3 ± 46.54	271.2 ± 68.16	271.4 ± 54.26	272.4 ± 64.70
HIGH DOSE	250.6± 64.94	250.6 ± 50.53	251.4 ± 52.44	251 ± 24.68	252 ± 74.60
P value (p)*	NS	NS	NS	NS	NS

NS- Not Significant, ** (p > 0.01),* (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

Table 8: Water intake (ml/day) of Wistar Albino rats group exposed to SANGU CHUNNAM

DOSE	DAYS				
	1	6	14	21	28
CONTROL	60.2 ± 1.21	60.6±6.12	62.2±4.10	62±4.12	64.6±1.32
LOW DOSE	62.1±1.10	62.6±2.42	62.9±1.72	63.2±6.86	64.4±1.54
MID DOSE	58.1±1.26	58.3±3.21	59.1±6.41	59.4±1.72	59.4±1.82
HIGH DOSE	54.1±1.41	54.2±1.42	54.4±1.44	54.6±1.52	55.8±2.82
P value (p)*	NS	NS	NS	NS	NS

N.S- Not Significant, ** (p > 0.01), * (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

Table 9: Food intake (gm/day) of Wistar Albino rats group exposed to SANGU CHUNNAM

DOSE	DAYS				
	2	7	23	22	28
CONTROL	36±4.12	36.2±3.12	37.3±2.84	37.2±1.41	38±2.43
LOW DOSE	38.2±1.41	38.3±1.13	38.1±1.21	39.5±1.23	39.5±1.26
MID DOSE	35.1±3.32	35.2±3.04	35.2±2.42	36.2±2.61	37.2±1.42
HIGH DOSE	37.1±1.32	37.1±1.41	37.6±2.62	38.2±1.10	39.6±3.42
P value (p)*	NS	NS	NS	NS	NS

N.S- Not Significant, ** (p > 0.01), * (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test

Table 10: Haematological parameters of Wistar Albino rats group exposed to SANGU CHUNNAM

Category	Control	Low dose	Mid dose	High dose	P value (p)*
Haemoglobin (g/dl)	15.8±0.68	15.60±0.84	15.8±0.26	15.92±0.65	N.S
Total WBC (×10^3 l)	8.71±0.32	8.75±0.26	8.68±0.27	8.60±1.22	N.S
Neutrophils (%)	29.22±0.01	30.02±0.10	31.11±1.12	32.02±1.02	N.S
Lymphocyte (%)	58.12±1.32	58.12±1.12	58.10±2.33	58.20±2.62	N.S
Monocyte (%)	.06±0.02	.06±0.04	.06±0.01	.06±0.06	N.S
Eosinophil (%)	0.2±0.04	0.2±0.02	0.2±0.01	0.2±0.06	N.S
Platelets cells10^3/µl	543.14±3.43	543.41±4.12	544.13±4.0	545.12±2.54	N.S
Total RBC 10^6/ µl	7.68±0.12	7.76±0.43	7.69±0.48	7.75±0.26	N.S
PCV%	49.42±0.2	49.42±1.12	49±1.22	49.60±2.21	N.S
MCHC g/dL	31.8±1.32	31.24±1.20	32.18±1.10	32.33±1.12	N.S
MCV fL(µm^3)	57.3±3.20	57.2±1.20	57.9±1.24	57.8±1.22	N.S

N.S- Not Significant, ** (p > 0.01), * (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

Table 11: Biochemical Parameters of Wistar Albino rats group exposed to SANGU CHUNNAM

BIOCHEMICAL PARAMETERS	CONTROL	LOW DOSE	MID DOSE	HIGH DOSE	P Value (p)*
GLUCOSE (R) (mg/dl)	105.14±8.2	105.16±4.10	106.02±11.10	106.12±6.2	N.S
T.CHOLESTEROL(mg/dl)	108.16±1.42	108.25±1.20	109.62±1.18	109.24±1.63	N.S
TRIGLY(mg/dl)	64.16±1.42	64.12±1.22	66.16±1.22	66.16±1.22*	N.S
LDL	69.6±2.13	69.12±2.34	69±1.32	69.24±12.12	NS
VLDL	13.4±1.32	13.42±4.24	13.24±2.84	13.54±14.16	NS
HDL	22.16±6.12	22.42±2.20	23.18±2.26	24.18±22.12	NS
Ratio 1(T.CHO/HDL)	4.61±1.12	4.62±1.24	4.64±1.14	4.64±2.30	NS
Ratio 2(LDL/HDL)	2.40±1.14	2.41±1.12	2.41±2.20	2.46±10.02	NS
Albumin (g/dL)	4.43±0.16	4.53±0.32	4.44±10.32	4.42±10.48	NS

NS- Not Significant, ** (p > 0.01), * (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

Table 12: Renal function test of Wistar Albino rats group exposed to SANGU CHUNNAM

PARAMETERS	CONTROL	LOW DOSE	MID DOSE	HIGH DOSE	P Value (p)*
UREA (mg/dl)	21.30±0.99	21.20±0.36	21.16±1.18	21.48±1.21	N.S
CREATININE(mg/dl)	0.42±0.02	0.41±0.04	0.42±0.06	0.44±0.08	N.S
BUN(mg/dL)	14.1±0.11	14.10±0.60	14±0.32	14.46±1.12	NS
URIC ACID(mg/dl)	5.00±0.34	5.06±0.21	5.7±0.14*	5.62±0.26	N.S

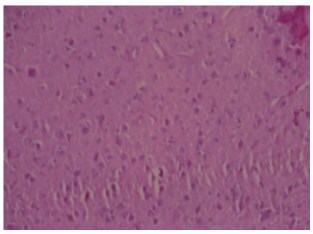
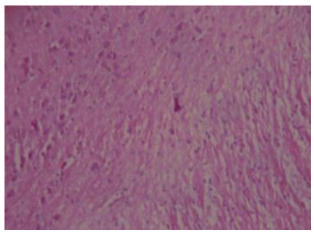
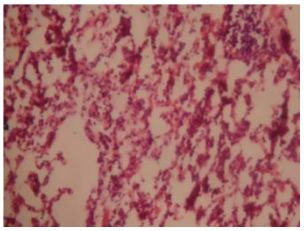
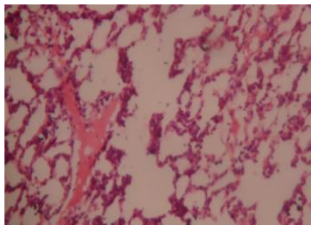
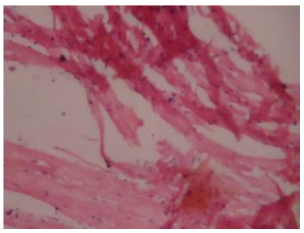
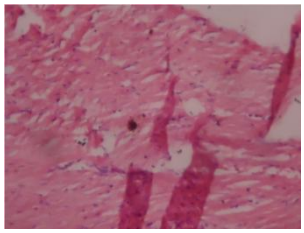
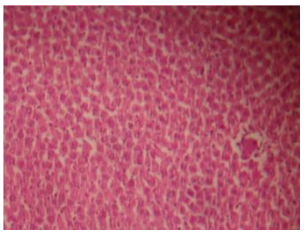
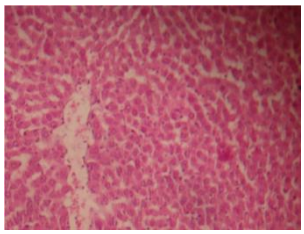
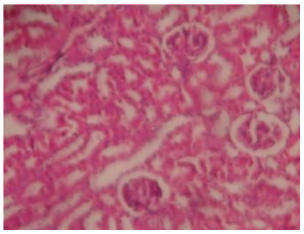
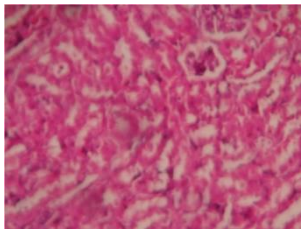
NS- Not Significant, ** (p > 0.01), * (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

Table 13: Liver Function Test of Wistar Albino rats group exposed to SANGU CHUNNAM

PARAMETERS	CONTROL	LOW DOSE	MID DOSE	HIGH DOSE	P Value (p)*
T.BILIRUBIN (mg/dl)	0.03±0.03	0.03±0.02	0.04±0.02	0.04±0.04	N.S
SGOT/AST(U/L)	139.15±1.33	139.34±0.32	140.01±1.62	140.75±1.02	N.S
SGPT/ALT(U/L)	72.12±1.18	72.22±1.34	72.14±1.28	72.46±0.61	N.S
ALP(U/L)	129.22±3.16	129±12.14	130±14.04*	130.23±11.15*	N.S
T.PROTEIN(g/dL)	8.12±0.34	8.18±0.12	8.16±0.14	8.54±0.49	N.S

NS- Not Significant, ** (p > 0.01), * (p >0.05), n = 10 values are mean ± S.D (One way ANOVA followed by Dunnett's test)

HISTOPATHOLOGY OF VITAL ORGANS

	Low Dose	High Dose
BRAIN		
LUNGS		
HEART		
LIVER		
KIDNEY		

BRAIN

Arrangement of the neurons appears intact with no signs of degeneration or apoptotic changes were observed.

HEART

Myocardial fiber mass appears denser with no signs of degeneration or fibrosis were observed.

LUNG

Microscopic examination of lung revealed normal alveoli and alveolar sac with no signs of infiltration.

LIVER

Appearance of portal triad was normal with no signs of inflammatory cell infiltration. Liver parenchyma appears normal with no evidence of necrosis were observed

KIDNEY

Appearance of proximal and distal convolutes tubules was normal. No evidence of atrophy was observed.

PHARMACOLOGICAL STUDY

EVALUATION OF ANTI INFLAMMATORY ACTIVITY OF SIDDHA DRUG SANGU CHUNNAM BY CARAGEENAN INDUCED PAW OEDEMA METHOD IN WISTAR ALBINO RATS

NAME: Dr. V. INDUMATHY

IAEC: LI/04/CLBMCP/2017

ANIMAL PROCUREMENT AND MAINTENANCE

Wistar Albino rats of either sex, weighing 150 g to200 g were purchased from C.L. Baid Metha College of Pharmacy, Chennai. India. Animal ethical guidelines of CPCSEA, Ministry of Animal Husbandry and Welfare, Govt. of India were strictly followed for the care and maintenance of procured animals. The animals were fed on standard rodent pellet and RO Water was provided ad libitum. The animals were kept for overnight fasting before experimentation.

ANTI-INFLAMMATORY STUDIES USING SANGU CHUNNAM (SCM)

For the experiment, the animals were divided into 5 groups with 6 animals in each group.

- Group-I (control) received 3% gum acacia 10 ml/kg p.o.
- Group-II (Carageenan) received 0.1ml of 1% w/v suspension of carrageenan S.C
- Group-III (standard) received Indomethacin 40 mg/kg p.o.
- Group-IV (Test-1) received SCM 100mg/kg p.o.
- Group-V (Test-2) received SCM 200mg/kg p.o.

All the drugs were administered orally and the volume of medicaments kept constant at 10 ml/kg body weight of the animals it was administered orally to rats 1 hr before subcutaneous injection of carrageenan. After 1 hr 0.1ml of 1% w/v suspension of carrageenan was injected into sub-plantar region of the left hind paw to all the groups. The paw volume was measured at 1, 2, 3, 4, and 5 hr using Plethysmometer (Model 7150 UGO Basile, Italy) Edema was expressed as the mean increase in paw volume relative to control animals.

PAW EDEMA VOLUME

Group	Dose	Initial paw volume	Change in paw edema mm at different time intervals				
		0hr	1 hr	2hr	3hr	4hr	5hr
I	Control	1.20 ± 0.14	1.20±0.14	1.20±0.14	1.20±0.14	1.20±.14	1.20±0.14
II	Carrageenan	1.21± 0.17	1.91 ± 0.21	2.27 ± 0.02	2.37 ± 0.14	2.48 ± 0.18	2.62 ± 0.17
III	Indomethacin	1.01± 0.06	2.10 ± 0.26	1.56 ± 0.15	1.47 ± 0.05	1.34 ± 0.18	1.15 ± 0.16
IV	Low dose	1.34 ± 0.11	1.46 ± 0.32	1.52 ± 0.18	1.64 ± 0.22	1.53 ± 0.22	1.58 ± 0.24
V	High dose	1.24±0.42	1.98 ± 0.22	1.82 ± 0.23	1.66 ± 0.44	1.62 ± 0.18	1.20 ± 0.12

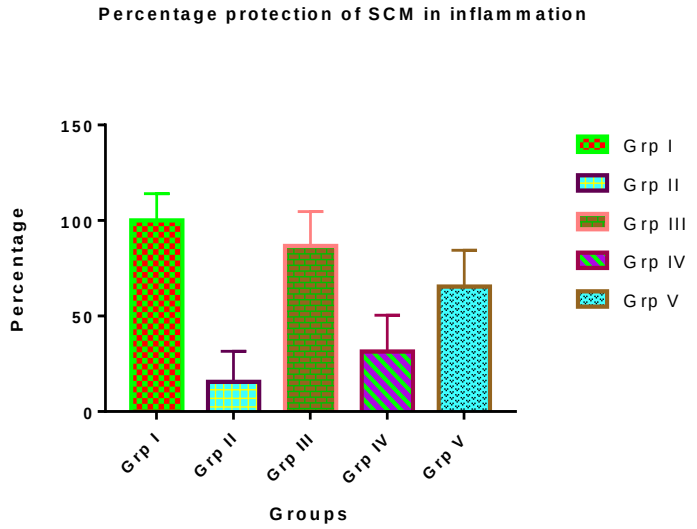
The paw volume up to the tribiotural articulation was measured at 0, 1, 2, 3, 4, 5 hrs

Group	5 hr in mm	Difference in paw volume	Percentage protection
I	1.20±0.14	0	100
II	2.62 ± 0.17	1.41	15.62
III	1.15 ± 0.16	0.24	86.68
IV	1.59 ± 0.32	0.15	31.42
V	1.30 ± 0.12	0.08	65.45

Percentage protection is calculated by the formulae: $(T_2 \text{---} T_{1/} T_2)$ x 100

T_1----normal control

T_2 ----drug treated test



CONCLUSION

Sangu Chunnam at the dose of 200 mg administered animals exhibited significant anti inflammatory activity when compared with control animal. The standard drug also exhibited significant anti-inflammatory activity.

EVALUATION OF THE SIDDHA HERBO MINERAL DRUG SANGU CHUNNAM FOR ITS ANALGESIC ACTIVITY IN WISTAR ALBINO RATS BY USING EDDY'S HOT PLATE METHOD

NAME: Dr. V. INDUMATHY

IAEC: LI/04/CLBMCP/2017

ANIMAL PROCRUMENT AND MAINTENANCE

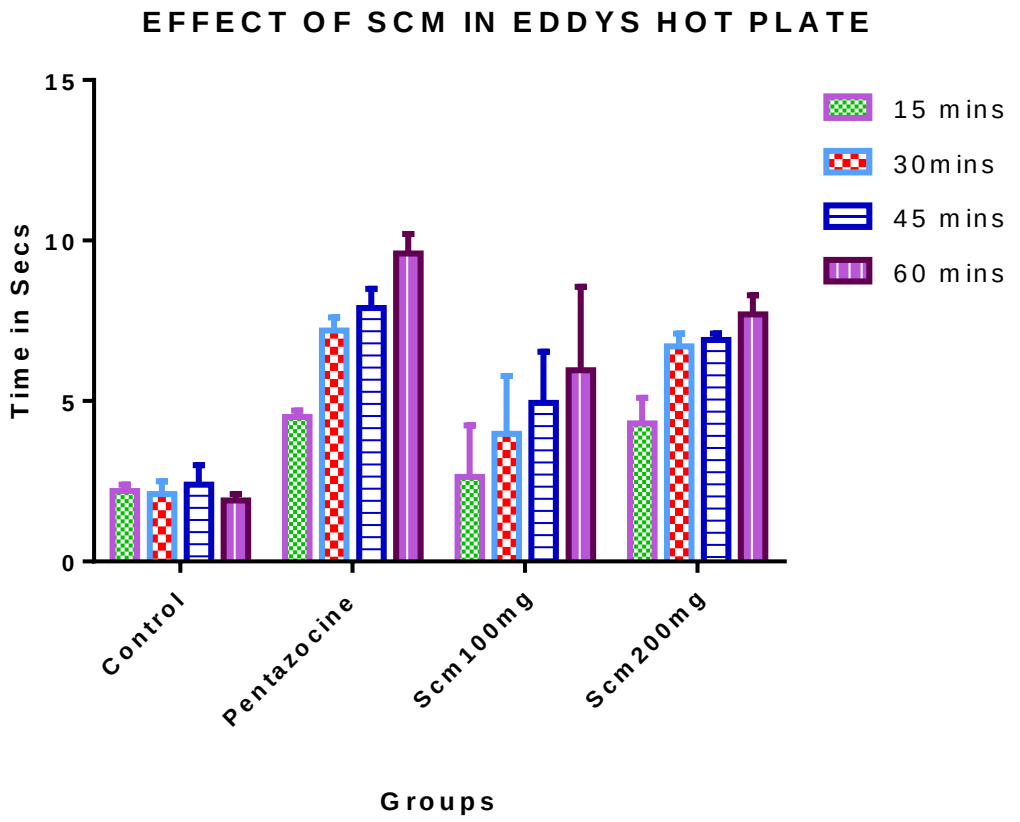
Wistar Albino rats of either sex, weighing 150 g to200 g were purchased from C.L. Baid Metha College of Pharmacy, Chennai. India. Animal ethical guidelines of CPCSEA, Ministry of Animal Husbandry and Welfare, Govt. of India were strictly followed for the care and maintenance of procured animals. The animals were fed on standard rodent pellet and RO Water was provided ad libitum. The animals were kept for overnight fasting before experimentation.

ANALGESIC ACTIVITY

EDDY'S HOT PLATE METHOD IN WISTAR ALBINO RATS

The hot plate assay method was employed for the purpose of preferential assessment of possible analgesic effects of Sangu Chunnam. The analgesic drug, Pentazocine, was used for positive control group. In this experiment, four groups (n=6) of Wistar Albino rats (200–250 g) were placed on a hot plate maintained at room temperature for 15 min. Food was withdrawn on the preceding night of the experiment. Group-1 normal control (0.5% CMC p.o.), and group-2 Pentazocine (30mg/kg, i.p.), whereas groups-3 and 4 animals received Sangu Chunnam (100and 200 mg/kg, p. o respectively). Each animal was then individually placed gently on Eddy's hot plate at 55^{o}C. Latency to exhibit nociceptive responses such as licking paws or jumping off the hot plate, were determined 15, 30, 45 and 60 min after administration of the test drug or vehicle.

Groups	Dose	15 mins	30 mins	45 mins	60 mins
	Mg/kg	Reaction time			
Control	10	2.2±.0.2	2.1±0.4	2.4±0.6	1.9±0.2
Pentazocine	30	4.5±0.2	7.2±0.4	7.9±0.6	9.6±0.6
Sangu Chunnam (SCM)	100	2.64±1.6	3.98±1.8	4.94±1.6	5.96±2.6
Sangu Chunnam (SCM)	200	4.3±0.8	6.7±0.4	6.9±0.2	7.7±0.6
n=6 ;Statistical analysis one way ANOVA followed by Dunnett t-test					



CONCLUSION

Sangu Chunnam at the dose of 200 mg administered animals exhibited good analgesic activity compared with control animals. The standard drug also exhibited significant activity.

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E-mail : mail@tnmgrmu.ac.in Fax : 91-44-22353698

PHYSIOCHEMICAL ANALYSIS OF SANGU CHUNNAM

1. **Loss On Drying:**

   An accurately weighed 2g of ***Sangu Chunnam*** formulation was taken in a tarred glass bottle. The crude drug was heated at 105^0C for 6 hours in an oven till a constant weight. The Percentage moisture content of the sample was calculated with reference to the shade dried material.

2. **Determination of total ash:**

   Weighed accurately 2g of ***Sangu Chunnam*** formulation was added in crucible at a temperature 600^0C in a muffle furnace till carbon free ash was obtained. It was calculated with reference to the air dried drug.

3. **Determination of acid insoluble ash:**

   Ash above obtained, was boiled for 5min with 25ml of 1M Hydrochloric acid and filtered using an ash less filter paper. Insoluble matter retained on filter paper was washed with hot water and filter paper was burnt to a constant weight in a muffle furnace. The percentage of acid insoluble as was calculated with reference to the air dried drug.

4. **Determination of water soluble ash:**

   Total ash 1g was boiled for 5min with 25ml water and insoluble matter collected on an ash less filter paper was washed with hot water and ignited for 15 min at a temperature not exceeding 450^0C in a muffle furnace. The amount of soluble ash is determined by drying the filtrate.

5. **Determination of water soluble Extractive:**

   5gm of air dried drug, coarsely powered ***Sangu Chunnam*** was macerated with 100ml of distilled water in a closed flask for twenty-four hours, shaking frequently. The Solution was filtered and 25 ml of filtrated was evaporated in a tarred flat bottom shallow dish, further dried at 100^0 C and weighted. The percentage of water soluble extractive was calculated with reference to the air dried drugs.

6. Determination of alcohol soluble extractive:

2.5gm. of air dried drugs, coarsely powdered ***Sangu Chunnam*** was macerated with 50 ml. alcohol in closed flask for 24 hrs. With frequent shaking, it was filtered rapidly taking precaution against loss of alcohol. 10ml of filtrate was then evaporated in a tarred flat bottom shallow dish, dried at 100^0C and weighted. The percentage of alcohol soluble extractive was calculated with reference to air dried drug.

S.no	Parameters	Percentage
1	Loss on drying	Less than 1%
2	Total ash value	94.36%
3	Acid insoluble ash	88.31%
4	Water soluble ash	1.27%
5	Water soluble extraction	3.52%
6	Alcohol soluble extraction	Less than 1%

The above stated physiochemical properties of the given sample certified to be present.

Professor & Head
Dept. of Siddha
The T.N. Dr. M.G.R. Medical University,
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BIO-CHEMICAL ANALYSIS

Preparation of sodium carbonate extract: 2 gm of the Sangu Chunnam is mixed with 5 gm of sodium carbonate and taken in a 100 ml beaker and 20ml of distilled water is added. Then the solution is boiled for 10 minutes, cooled and then filtered. The filtrate is called sodium carbonate extract.

TEST FOR ACID RADICALS

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.a	**Test for Sulphate**: 2 ml of the above prepared extract is taken in a test tube to this add 2ml of 4% ammonium oxalate solution.	Presence of white precipitate.	Presence of sulphate.
1.b	**Test for Sulphate**: 2 ml of the extract is added with 2 ml of dilute hydrochloric acid until the effervescence ceases off. Then 2ml of barium chloride solution is added.	Absence of white precipitate.	Absence of sulphate.
2	**Test for chloride:** 2ml of extract is added with dilute nitric acid till the effervescence ceases. Then 2ml of silver nitrate solution is added.	Absence of white precipitate.	Absence of chloride.
3	**Test for phosphate:** 2ml of the extract is treated with 2ml of ammonium molybdate solution and 2ml of concentrated nitric acid.	Absence of yellow precipitate.	Absence of Phosphate.
4	**Test for carbonate:** 2ml of the extract is treated with 2ml of magnesium sulphate solution.	Absence of white precipitate.	Absent.

5	**Test for sulphide:** 1gm of the substance is treated with 2ml of concentrated hydrochloric acid.	Absence of Rotten egg smelling is obtained.	Absence of Sulphide.
6	**Test for nitrate:** 1gm of the substance is heated with copper turnings and concentrated sulphuric acid and viewed the test tube vertically down.	Absence of reddish brown colour.	Absence of Nitrate.
7.a	**Test for fluoride and oxalate:** 2ml of the extract is added with 2ml of dilute acetic acid and 2ml of calcium chloride solution and heated.	Absence of white precipitate.	Absence of Fluoride and oxalate.
7.b	**Test for fluoride and oxalate:** 5 drops of clear solution is added with 2ml of dilute sulphuric acid and slightly warmed to this, 1ml of dilute potassium permanganate solution is added.	Absence of KMNO4 solution discoloration.	Absence of Fluoride and oxalate.
8	**Test for nitrate:** 3 drops of the extract is placed on a filter paper. On that, 2 drops of acetic acid and 2 drops of benzidine solution is placed.	Absence of yellowish red colour.	Absent.
9	**Test for borate:** 2 pinches of the substance is made into paste by using sulphuric acid and alcohol (95%) and introduced into the blue flame.	Absence of green tinged flame.	Absent.

TEST FOR BASIC RADICALS

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
10	**Test for lead:** 2ml of the extract is added with 2ml of potassium iodide solution.	Absence of yellow precipitate.	Absent.
11.a	**Test for copper:** one pinch of the substance is made into paste with concentrated hydrochloric acid in a watch glass and introduced into the luminous part of the flame.	Absence of bluish green coloured flame is obtained.	Absent.
11.b	**Test for copper**: 2ml of the extract is added with excess of ammonia solution.	Absence of deep blue colour.	Absent.
12	**Test for aluminium**: To the 2ml of the extract, sodium hydroxide solution is added in drops to excess.	Absence of white precipitate.	Absent.
13.a	**Test for iron**: To the 2ml of the extract, 2ml of ammonium thiocyanate solution is added.	Blood red colour is Obtained.	Presence of iron.
13 b	**Test for iron:** To the 2ml of the extract, 2ml of the ammonium thiocyanate solution and 2ml of concentrated nitric acid is added.	Blood red colour is Obtained.	Presence of iron.
14	**Test for zinc:** To the 2ml of the extract, sodium hydroxide is added in drops to excess.	Absence of white precipitate.	Absent.
15	**Test for calcium**: 2ml of the extract is added with 2ml of 4% ammonium oxalate solution.	Presence of white precipitate.	Presence of calcium.
16	**Test for magnesium**: To the 2ml of the extract, sodium hydroxide is added in drops to excess.	Absence of white precipitate.	Absence of magnesium.
17	**Test for ammonium:** 2ml of the extract few ml of nessler's reagent and excess of sodium hydroxide solution are added.	Absence of Reddish brown precipitate.	Absence of Ammonium.

18	**Test for potassium:** A pinch of substance is treated with 2ml of sodium nitrite solution and then treated with 2ml of cobal nitrate in 30% glacial acetic acid.	Absence of yellow precipitate.	Absence potassium.
19	**Test for sodium:** 2 pinches of the substance is made into paste by using hydrochloric acid and introduced into the blue flame.	Absence of yellow colour flame.	Absence of sodium.
20	**Test for mercury:** 2ml of the extract is treated with 2ml of sodium hydroxide solution.	Absence of yellow precipitate.	Absence of mercury.
21	**Test for arsenic:** 2ml of extract is treated with 2ml of silver nitrate solution**.**	Absence of yellow precipitate.	Absent.
22	**Test for starch:** 2ml of the extract is treated with weak iodine solution.	Absence of blue colour.	Absent.
23	**Test for reducing sugar:** 5ml of benedict's qualitative solution is taken in a test tube and allowed to boil for 2 minutes and added 10 drops of the extract and again boiled for 2 minutes. The colour changes are noted.	Absence of Green colour	Absence of reducing sugar.
24	**Test for the alkaloids:** 2ml of the extract is treated with 2ml of the potassium iodide solution.	Absence of red colour.	Absent.
25	2ml of the extract is treated with 2ml of 5%NaOH, well and add 2 drops of copper sulphate solution.	Absence of Violet colour.	Absent.

RESULTS

The trial medicine SANGU CHUNNAM contains

Acid Radicals **:** Sulphate

Basic Radicals **:** Iron and Calcium

INSTITUTIONAL ETHICS COMMITTEE CERTIFICATE

GOVERNMENT SIDDHA MEDICAL COLLEGE
Arumbakkam, Chennai-106

Communication Of The Decision Of Institutional Ethics Committee (IEC)

IEC No: GSMC-CH-ME-5/006/2016

Protocol title: AN OPEN NON-RANDOMIZED CLINICAL TRIAL OF SANGU CHUNNAM IN AZHAL THALAI NOKKADU (SINUSITIS).
Principal Investigator: Dr. V. INDUMATHY
Name & Address of Institution: Government Siddha Medical College, Arumbakkam, Chennai-106
☑ New Review ☐ Revised Review ☐ Expedited Review
Date of review (DD/MM/YY): 05-04-2016 Date of Previous Review, If Revised Application:
Decision of the IEC ☑ Recommended ☐ Recommended with suggestions ☐ Revision ☐ Rejected
Suggestions / Reasons / Remarks: 1) Adjuvant changes from Hot water to Ghee. 2) Dosage - changes from 1gram to 50 – 100 mgs.
Recommended for a period of 1 year from date of completion of preclinical studies :

Please Note:

- Inform IEC immediately in case of any adverse events/serious drug reaction.
- Seek IECapproval in case of any change in the study procedure, site and investigator
- This approval is valid only for period mentioned above
- IEC member have the right to review the trial with prior intimation.

5/4/16

Dr.P.Jeyaprakashnarayanan, M.D(s)
Chairman

Dr.K.Kanakavalli, M.D(s)
Member Secretary

INSTITUTIONAL ETHICS COMMITTEE

Date : 05/04/2016.
Sub : IEC review of research proposals.
Ref : Your letter dated

MEMBERS	PARTICIPATION	SIGNATURE
Dr.P.JEYAPRAKASH NARAYANAN, M.D(S)., Chairman	✓	
Dr.K.KANAKAVALLI, M.D(S)., Member secretary	✓	
Dr.P.SATHYA RAJESWARAN, M.D(S)., Clinician – Siddha	✓	
Dr.N.KABILAN, M.D(S)., Clinician – Siddha	✓	
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Mr.B.PADMANABHA PILLAI Philosopher	✓	
Mrs. PREETHA SARAVANAN Public person	✓	05/04/16

5/4/16.

Dr. P. Jeyaprakashnarayanan, M.D(s)
Chairman

Dr.K. Kanakavalli, M.D(s)
Member secretary

BIO-STATISTICS REPORT

CLINICAL PROGNOSIS – SINUSITIS SEVERITY SCORE (SSS)

S. No	BEFORE TREATMENT	AFTER TREATMENT
1	20	2
2	16	0
3	20	0
4	15	0
5	19	13
6	16	8
7	16	0
8	11	8
9	20	0
10	22	0
11	19	0
12	20	0
13	11	8
14	22	0
15	16	0
16	19	0
17	20	0
18	20	0
19	20	0
20	16	0
21	18	8
22	19	0
23	20	0
24	20	0
25	18	8
26	18	0
27	16	0
28	17	0
29	13	8
30	15	0
31	15	0
32	7	4
33	18	0
34	16	8
35	15	0
36	19	0
37	18	8
38	21	0
39	20	0
40	19	0

Software: Graph pad InStat 3

Variables: Sinusitis Severity Score- Before Treatment, After Treatment

No of Cases: 40

Test: Paired t test

Confidence interval: 95%

Correlation coefficient (r): -0.1835

Mean Difference: 10.525

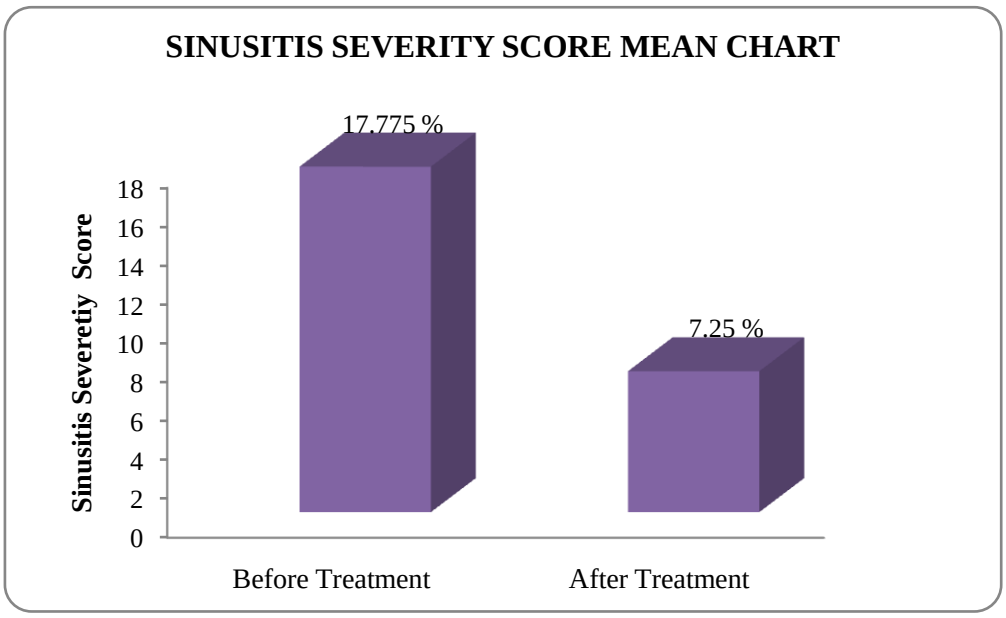
P Value (2 tailed): p<0.0001

t value: 16.750

Degrees of freedom: 39

Inference:

Since the P value is highly significant (< 0.0001), the null hypothesis is not accepted. So, the treatment was extremely significant improving the sinusitis severity score among the patients for the treatment of Azhal Thalainokkadu.



GOVERNMENT SIDDHA MEDICAL COLLEGE

ARIGNAR ANNA GOVERNMENT HOSPITAL OF INDIAN MEDICINE

CHENNAI – 600 106

AN OPEN NON RANDOMIZED CLINICAL TRIAL OF SANGU CHUNNAM IN TREATMENT OF

"AZHAL THALAINOKKADU" (SINUSITIS)

FORM V: INFORMED CONSENT FORM

"I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have asked have been answered to my satisfaction.

I consent voluntarily to participate in this study and understand that I have the right to withdraw from the study at any time without in any way it affecting my further medical care".

"I have received a copy of the information sheet/consent form".

Date:

Signature of the participant:

In case of illiterate participant:

"I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely."

Date:

Signature of a witness Left thumb Impression of the Participant

(Selected by the participant bearing no connection with the survey team)

Date:

Station:

Signature of participant:

Signature of the Guide Signature of the Investigator

அரசு சித்த மருத்துவக் கல்லூரி, சென்னை

அறிஞர் அண்ணா மருத்துவமனை, சென்னை-106

அழல் தலைநோக்காடு நோய்க்கான சித்த மருந்தின் (சங்கு சுண்ணம்)

பரிகரிப்புத் திறனைக் கண்டறியும் மருத்துவ ஆய்விற்கான தகவல் படிவம்

ஒப்புதல் படிவம்

ஆய்வாளரால் சான்றளிக்கப்பட்டது

நான் இந்த ஆய்வை குறித்த அனைத்து விபரங்களையும் நோயாளிக்கு புரியும் வகையில் எடுத்துரைத்தேன் என உறுதியளிக்கிறேன்.

தேதி: கையொப்பம்:

இடம்: பெயர்:

நோயாளியின் ஒப்புதல் படிவம்

என்னிடம் இந்த மருத்துவ ஆய்வின் காரணத்தையும், மருந்தின் தன்மை மற்றும் மருத்துவ வழிமுறை பற்றியும், தொடர்ந்து எனது உடல் இயக்கத்தை கண்காணிக்கவும், அதனை பாதுகாக்கவும் பயன்படும் மருத்துவ ஆய்வுக்கூட பரிசோதனைகள் பற்றி திருப்தி அளிக்கும் வகையில் ஆய்வு மருத்துவரால் விளக்கிக் கூறப்பட்டது.

நான் எனது இந்த மருத்துவ ஆய்வின் போது, காரணம் எதுவும் கூறாமல் எப்பொழுது வேண்டுமானாலும் இந்த ஆய்விலிருந்து விடுவித்துகொள்ளும் உரிமையை தெரிந்திருக்கின்றேன். நான் என்னுடைய சுதந்திரமான தேர்வு செய்யும் உரிமையைக் கொண்டு நோய்க்கான சங்கு சுண்ணம் மருந்தின் பரிகரிப்புத் திறனைக் கண்டறியும் மருந்தின் ஆய்விற்கு என்னை உட்படுத்த ஒப்புதல் அளிக்கிறேன்.

தேதி: கையொப்பம்:

இடம்: பெயர்:

தேதி: சாட்சிக்காரர் கையொப்பம்:

இடம்: பெயர்:

துறைத்தலைவர் கையொப்பம் ஆராய்ச்சியாளர் கையொப்பம்

CASE SHEET PROFORMA FOR AZHAL THALAINOKKADU

GOVT. SIDDHA MEDICAL COLLEGE & HOSPITAL, CHENNAI-106

POST GRADUATE DEPARTMENT BRANCH –I MARUTHUVAM

DURATION: 2016-2018

Op No / Ip No	:	Occupation	:
Ward No	:	Income	:
Bed No	:	Nationality	:
Name	:	Religion	:
Age	:	D.O.A	:
Sex	:	D.O.D	:
Address	:	Diagnosis	:

1. Complaints and duration :

2. History of present illness :

3. History of past illness :

4. Personal history :

5. Occupational history :

6. Menstrual history :

7. Personal habits : Veg/Non veg/Smoker/Alcoholic/Tobacco chewer

8. Family history :

GENERAL EXAMINATION

Patient consciousness :
Body Built :
Nourishment :
Anaemia :
Jaundice :
Cyanosis :
Clubbing :
JVP :
Tracheal deviation :
Pedal oedema :
Lymphadenopathy :

VITAL SIGNS

Body Temp :
Pulse :
Respiratory rate :
Blood Pressure :
Weight :

SIDDHA ASPECT

NILAM

Kurinchi :

Mullai :

Marutham :

Neithal :

Paalai :

PARUVA KAALAM

Kaar (Aavani, Purattasi) :

Koothir (Aippasi, Kaarthigai) :

Munpani (Margazhi, Thai) :

Pinpani (Maasi, Panguni) :

Elavenil (Sithirai, Vaigasi) :

Muduvenil (Aani, Aadi) :

YAAKKAI (UDAL)

Vatham :

Pitham :

Kabam :

Kalappu :

GUNAM

Satthuvam :

Rajotham :

Thamasam :

PORI/PULANGAL (SENSORY ORGANS)

Mei (Sensation) :

Vaai (Taste) :

Kan (Vision) :

Mooku (Smell) :

Sevi (Hearing) :

KANMENTHIYAM/KANNMA VIDAYAM (MOTOR ORGANS)

Kai (Dhaanam) :

Kaal (Kamanam) :

Vaai (Vasanam) :

Eruvaai (Visarkkam) :

Karuvaai (Aanantham) :

UTHKAAYA ATHAKAAYAM

Puyam (forearm) :

Sayam (arm) :

Kaal (leg) :

Paatham (feet) :

UYIR THATHUKKAL

A. VATHAM

Piranan :

Abanan :

Viyanan :

Udhanan :

Samanan :

Nagan :

Koorman :

Kirukaran :

Devathathan :

Thananjeyan :

B. PITHAM

Anar pitham :

Ranjaga pitham :

Saathaga pitham :

Pirrasaga pitham :

Alosaga pitham :

C. KABAM

Avalambagam :

Kilethagam :

Pothagam :

Tharpagam :

Santhigam :

UDAL THATHUKKAL

Saaram :

Senner :

Oon :

Kozhuppu :

Enbu :

Moolai :

Sukkilam/Suronitham :

ENVAGAI THERVUGAL

1. Naa :

2. Niram :

3. Mozhi :

4. Vizhi :

5. Sparisam :

6. Malam :

7. Moothiram :

a. Neer Kuri :

b. Nei Kuri :

8. Naadi :

MALAM

Niram :

Edai :

Erugal :

Elagal :

MOOTHIRAM

1. Neerkuri

Niram :

Manam :

Edai :

Nurai :

Enjal :

2. Neikuri :

MODERN ASPECT

SYSTEMIC EXAMINATION

Inspection :

Palpation :

Percussion :

Auscultation :

OTHER SYSTEMS

Cardio vascular system :

Respiratory system :

Central nervous system :

Genito urinary system :

CLINICAL SIGNS AND SYMPTOMS OF AZHAL THALAINOKKADU

Symptoms	Before Treatment	After Treatment
Nasal Obstruction		
Rhinorrhoea		
Recurrent Sneezing		
Headache		
Irritation and watering of eyes		
Pain over Maxillary areas		

SINUSITIS SEVERITY SCORE (SSS)	**BT**	**AT**
1. HEADACHE	☐	☐
a. No		
b. Mild		
c. Moderate		
d. Severe		
2 RINHORRHOEA	☐	☐
a. No		
b. Mild		
c. Moderate		
d. Severe		
3. NASAL OBSTRUCTION	☐	☐
a. No		
b. Mild		

c. Moderate

d. Severe

4. RECURRENT SNEEZING	☐	☐

a. No

b. Mild

c. Moderate

d. Severe

5. IRRITATION AND WATERING OF EYES	☐	☐

a. No

b. Mild

c. Moderate

d. Severe

6. PAIN OVER MAXILLARY AREAS	☐	☐

a. No

b. Mild

c. Moderate

d. Severe

Total Score	☐	☐
Net Total Score (Difference between Total score before treatment and Total score after treatment)	☐	

Note: Improvement is assessed based on the Difference between Total Score before treatment and Total Score after treatment

0-3	- No improvement
4-7	- Mild improvement
8-11	- Moderate improvement
12 above	- Good improvement

INVESTIGATIONS

1. BLOOD

TC, DC

ESR

Blood Glucose

Serum Cholesterol

Blood Urea

2. URINE

Albumin

Sugar

Deposits

3. SPECIFIC INVESTIGATIONS

X-ray for PNS

CASE SUMMARY

DIAGNOSIS

Azhal Thalainokkadu

TRIAL MEDICINE

Sangu Chunnam

Dose : 130 mg, twice a day

Anubanam : Ghee

Duration of Treatment : 48 days

Pathiyam (Do's and Dont`s)

- Patients are advised to leave away from polluted area.
- Patients are advised to avoid cold items like ice water.
- Patients are advised to bath in warm water.
- Patients are advised to lead a stress and strain free life.
- The hair should be dried well after the bath.
- Patients are advised to do yogasanas.

PROGNOSIS AT THE END OF THE TREATMENT

Prognosis is assessed by Reduction in clinical symptoms and by comparing the SINUSITIS SEVERITY SCORE (SSS) before and after treatment.

Medical Officer **Head of the Department**

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BIBLIOGRAPHY

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